FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 242. (No. 33, Vol. V.) AUGUST 16, 1913. [Registered at the G.P.O. as a Newspaper.] [Weekly, Price 3d. Post Free, 3½d.

Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.

Telegrams: Truditur, Westrand, London. Telephone: Gerrard 1828.

Annual Subscription Rates, Post Free.

United Kingdom ... 15s. 0d. Abroad ... ... 20s. 0d.

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EDITORIAL COMMENT.

A Dunne Success.

The successful flight from Eastchurch to France just made by Commander Felix on a Dunne aeroplane seems to have come as a bolt from the blue upon the lay press, to whom, aeronautical correspondents notwithstanding, the potential interest and possibilities of this remarkable aircraft appear to have been entirely unknown. We venture to think, however, that, from the very full descriptions which have appeared in FLIGHT (of which a list is given below*), readers of FLIGHT will not be thus easily surprised, although they may be appropriately startled at the nature of the recent public announcement.

*April, 1910 p. 278 Photo. of Dunne aeroplane, front view.
April, 1910 p. 330 2 photos. of Dunne aeroplane in flight.
June, 1910 p. 459 Detailed description of biplane, with scale drawings.
Sept., 1910 p. 709 The Blair Atholl experiments (with 5 photos.).
Feb., 1911 p. 133 Dunne's stability tests at Eastchurch.
April, 1911 p. 308 Photo. of undercarriage at Olympia.
June, 1911 p. 542 Detailed description of monoplane, with scale drawings.
Nov., 1911 p. 987 3 photos. of biplane.
Jan., 1912 p. 56 Stability test at Eastchurch.
Sept., 1912 p. 865 Letter from J. W. Dunne.
Nov., 1912 p. 1082 2 photos. of biplane.

Progress in aeroplane design and construction is apt to seem most exhaustingly slow, and it must be admitted that the march of events in the Dunne camp at Eastchurch has not been characterised by the scintillating sequence of popular performances that has done so much here and there to bring this or that machine before the public eye. Nevertheless, no pioneer has worked more perseveringly, nor with a firmer set purpose, than J. W. Dunne, and whatever success may accrue to him in the future, he will deserve it all.

It is appropriate that we should publish this week the first instalment of a paper by Mr. Dunne, for which, we believe we may say with some assurance, the entire aviation world in England has been waiting this many a long day. Mr. Dunne's thesis on the theory of the stability of his aeroplane is one that should be read with close attention by all students of flight, and we hope that those who were unable to discuss the paper at the Aeronautical Society's meeting last session will broach points that interest them in these columns.

The discussion at the Aeronautical Society—which, by the way, was really on Mr. O'Gorman's very interesting paper on Stability Devices—evoked a remarkable concensus of opinion that was favourable to the Dunne machine. Mr. Dunne deserves that frankly voiced approval, quite apart from the success or otherwise of his particular aeroplane, for he has worked systematically and conscientiously for a long while to attain a desired result.

One of his remarks during the course of the discussion gave a clue to the inspiration that initially caused him to attack the problem of aeroplane stability. Among his friends is Mr. H. G. Wells, whose early imaginative conception of the romance of aeronautics as an art may justly be said to have amounted to genius. Mr. Wells appreciated how much the problem of flight is mainly a problem of balance, and impressed his point of view upon Mr. Dunne to such good purpose as to arouse the interest of his listener's technical inclinations. Mr. Dunne adopted the idea as a problem for especial study, and he has not once looked back in his lonely furrow.

It was mainly through model experiments that he was led to evolve his present flying machine, and an interesting feature that is emphasised in his paper is the distinction between the down-turned leading edge of his own aeroplane as compared with the upturned trailing tip

employed on machines like the Etrich and the Handley Page.

Considerable discussion raged round these points at the Aeronautical Society's meeting, Mr. Dunne contending that there is an essential difference in principle, and some of the other speakers contending that there is no important difference at all. These latter argue that a negative wing-tip is a negative wing-tip, neither more nor less, whichever way it is obtained. Neither side seemed to succeed in convincing the other. At first blush, the opponents of Mr. Dunne in this matter appear to have simple logic on their side. But, it is often the apparently guileless argument that is the most deceptive, and in this particular matter there is a point of difference that seems to us worthy of consideration, although it did not emerge during the course of that argument.

If a simple piece of thin cardboard, such as a postcard, be held by the two hands between the finger and thumb of each situated at opposite corners, it may be warped by a simple downward pressure of the thumb of one hand and the first finger of the other. Pressure is thus applied at the opposite extremities of a diagonal, and the downturned portion in one place may be regarded as part of the leading edge of the wing-tip, while the other downturned portion represents the trailing edge of the wing-shoulder.

Without exception, it will be found that the simple flexible flat plane, when thus distorted, warps itself always in the manner described. One diagonal remains a straight line, the other assumes a simple curve. The plane thus warped may be regarded as analogous to one of the Dunne wings extending from shoulder to tip, the tip being negative by virtue of the downturned leading edge, the shoulder being strongly positive because of the downturned trailing edge. It is merely a question of holding the warped card before the eye in a suitable attitude in order to picture the appropriate position for flight.

Now take the case of the negative wing-tip that is obtained by an upturned trailing edge. It is a matter of some little difficulty so to warp the card as to produce an upturned trailing edge at the extremity of the imaginary wing that it represents, but when the appropriate twist has been imparted to the surface it will be observed that there is indeed a very striking change in the nature of that surface as a whole when regarded from the standpoint of its aerodynamic qualities as an aerofoil.

In the first place, the trailing edge itself now has a double curvature, and a considerable portion of the surface in the centre of the card remains a flat plane in consequence. By gently pressing upon that surface from beneath, it will suddenly spring upwards and cause the card to assume its natural warped shape which produces the downturned leading edge. The negative angle is still retained, but in a different form, and the central portion of the card, which is not supposed to be negative in ordinary attitudes, now possesses a cambered chord. It has, therefore, potentially superior lifting qualities.

It may be, of course, that this comparison does not hold good to the same extent in respect to actual aeroplanes, but the simple experiment with a postcard is not without interest, and it does at any rate seem to lend colour to certain statements made by Mr. Dunne in respect to the advantageous pressure distribution along his wing span.

Those who read the series of articles on stability and control by Mr. A. E. Berriman will have the greater interest in reading Mr. Dunne's paper, inasmuch as it presents an alternative explanation of the potential stabilising value of negative wing-tips. It will be realised that there is, apparently, very little in common between the two theories.

When Mr. O'Gorman read his original paper, which was published in FLIGHT at the time, it seemed to us that the one thing needed to complete the utility of his most painstaking summary would be for someone to analyse and classify the hypothetical weather conditions to which each separate type of stability device could be said to represent a theoretical solution of the stability problem. So seldom does the inventor of a stability device trouble to specify the hypothesis as to the weather with which he seeks to deal, that one might suppose that some machines had nothing to do with the atmosphere. Everyone who conceives a stability device, however, does consciously or unconsciously at the same time specify a hypothetical state of the air for which his device is suited. In short, he defines a gust.

Here, in our opinion, is the principal stumbling-block in the whole situation. The realm of aviation knows comparatively little of meteorology, and it is essential to know more of this subject before one can really discuss the theoretical aspects of practical stability with any degree of reason. It is, of course, not without interest to work out simple hypothetical cases, and the most noteworthy of such treatments of the subject is that of Professor Bryan in respect to the conditions for still air. In connection with Mr. Berriman's theory on negative wing-tips, the hypothesis, as was explained at the time, supposes that it is possible to define a gust as a relative spin of the wind. That is to say, the vector representing the relative wind in respect to the machine is supposed, in windy weather, constantly to be performing angular oscillations about some arbitrary centre of the flying system. It is further supposed that these angular motions can be represented by two components at right-angles, one in a horizontal plane representing the veering of the wind, and the other in a vertical plane representing its trend.

Having defined the weather, the problem presented for solution is still an arbitrary one. It requires the neutralising of the effect of spin in regard to the horizontal plane and the sympathetic movement of the machine in respect to the component of the wind in the vertical plane. For the former, negative wing-tips are put forward as a potential solution, and for the latter the well-known longitudinal dihedral suffices.

Mr. Hume Rothery's independent investigation of the theoretical qualities of negative wing-tips is based on an hypothesis that is tantamount to the above, but somewhat differently expressed.

As Professor Petavel, who took the chair at the Aeronautical Society's meeting, very properly emphasised, theory and practice are interdependent. Neither can progress for long without the other, for they need to stand on each other's shoulders alternately. The case for negative wing-tips has a peculiar interest, therefore, because of the actual existence of the Dunne machine. Mr. Dunne's practical work assumes a real importance that must for ever stand to his credit, and we should like to add that it is a fine thing for this country to have a man of Mr. Dunne's calibre thus independently working so systematically on full-scale experimental research. He has accomplished much, but he would be the last to deny that he may yet accomplish more through the mental dissection of his machine from the theoretical standpoint.

MEN OF MOMENT IN THE WORLD OF FLIGHT.

British Pilots.

MR. ROBERT B. SLACK.

There are many more phases of the stability problem that were discussed at this most interesting meeting, but space precludes a full reference to all of them. There is the all-important query of stability *versus* control, for example, and under this head Mr. Dunne made a very good point anent the popular supposition that inherent stability implies absence of sensitiveness to personal control. As he remarked, why should it be supposed that instability and controllability go hand in hand, and on what grounds should a stable aeroplane be expected to be less sensitive to control than an unstable system?

In the limit, the safety of any vehicle depends on the driver, and for our own part we believe stability and control to be inseparably connected as fields of research. An aeroplane is different to a kite; it is required to obey the will of the pilot, and any stabilising system that ignores the problem of voluntary control fails to take account of the most important point of all. In so far as the factor represented by personal control resolves itself into steering the machine, the factor represented by stability resolves itself it seems to us, into being able to continue the steering movement with fixed controls indefinitely without danger.

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ROBERT B. SLACK.

PILOT.

ALTHOUGH the subject of our portrait this week had started work at the Blériot school at Hendon early in 1911, it was not until June of last year that he came prominently before the public eye. Robert B. Slack was born at Nottingham, on April 14th, 1886, as he puts it, through no fault of his own, and when schooling was over he was apprenticed to motor engineering, and spent about nine years in Nottingham and Glasgow. This fact doubtless accounts for the success which has attended Slack as a pilot of aeroplanes, especially in making cross-country journeys. It was in June of last year that Slack started off from Hendon on a Blériot monoplane for a 1,200 miles tour of England and Scotland in the interests of the International Correspondence Schools. Among other places visited during the tour were Leicester, Nottingham, Birmingham, Manchester, Southport, Morecambe, Wigtown, Carlisle, &c. This journey safely concluded, Slack then embarked upon a further trip of 700 miles in the same interests, this time round the south-east of England. Subsequently the Blériot machine was presented to the War Office by the International Correspondence Schools, and it is now doing good service with No. 3 Squadron of the Royal Flying Corps at Netheravon, on Salisbury Plain.

Not so very long ago, Slack was engaged by the Grahame-White Aviation Co. as pilot and assistant engineer, and he has recently been doing a deal of flying on the Morane-Saulnier machines, two of which he has brought over from France to Hendon by the aerial way. In addition to the Blériot and Morane monoplanes, Slack is familiar with the handling of the Nieuport monoplane and the Caudron biplane.

"THE HAWK."

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"DAILY MAIL" WATERPLANE CIRCUIT OF BRITAIN.

AT 6 a.m. to-day, Saturday, the competition opens, and entrants may start thereafter at any time so long as they complete the prescribed course, within the maximum time—72 hours—from starting, by 6 p.m. on Saturday, August 30th. The official starting line will be in close proximity to the "Enchantress," the former Admiralty yacht, which is now the floating club-house of the Royal Motor Yacht Club, and is moored in Southampton Water, off Netley Abbey. It will serve as the headquarters of the officials, while the Admiralty have granted the use of the accommodation at the Calshot Naval Station for the housing of the competitors' machines.

THE COURSE.

As Spithead is a prohibited area under the Aerial Navigation Act, special permission has been granted by the Home Office for the competitors to fly over it. The machines will be steered between the Calshot and Calshot Spit lightships, then in a direct line to the Horse Sand Fort, and so out into the English Channel. Round the south coast, past Brighton and Folkestone, the pilots will make their way on their 144-mile journey to the first control—Ramsgate—being careful to pass Dover at a distance of more than 800 yards from the end of Admiralty Pier, and keeping under the 300 ft. height-limit fixed in the special permit granted by the Government. From Ramsgate there will be the shortest stage—only 96 miles—past Harwich and Lowestoft to Yarmouth. Then on past Cromer, crossing The Wash and the mouth of the Humber to Scarborough, a distance of 150 miles. As the circuit progresses the stages tend to become longer, so the next control is not reached until 218 miles have been covered past Whitby, Sunderland, Berwick, across the Firth of Forth, past Dundee and Montrose to Aberdeen. Then follows a comparatively short stage of 134 miles past Peterhead and Banff to Cromarty, in the Moray Firth. The next stage is the shortest of all, 94 miles over the Caledonian Canal to Oban. From there the homeward journey will be continued down the Sound of Jura to the north-east coast of Ireland, and skirting this the 222-mile stage will finish at Dublin. The next stage is the longest of all, 280 miles. After crossing St. George's Channel to Milford Haven, the Bristol Channel will be passed on the way to The Lizard, and so round the foot of England to Falmouth. The last stage of all is 202 miles, and, passing Plymouth, Torquay and Weymouth, reaches to St. Catherine's Point, in the south of the Isle of Wight, then round to the Nab Lightship, and so back to the starting-point off Netley.

THE STAGES.

Summarised, the nine stages of the race are :—

Southampton to Ramsgate	144 miles
Ramsgate to Yarmouth	96 ,,
Yarmouth to Scarborough	150 ,,
Scarborough to Aberdeen	218 ,,
Aberdeen to Cromarty	134 ,,
Cromarty to Oban	94 ,,
Oban to Dublin	222 ,,
Dublin to Falmouth	280 ,,
Falmouth to Southampton	202 ,,
Total...	1,540 ,,

The officials and headquarters at the various controls appear in the Royal Aero Club Official Notices, p. 892.

THE COMPETITORS.

Those taking part in the competition are :—

No.	Pilot.	Passenger.	Machine.	Engine. h.p.
1	H. G. Hawker	H. Kaufer	Sopwith ...	100 Green
3*	James Radley...	G. England	Radley-England	150 Sunbeam
4	F. K. McClean	Gus Smith	Short	100 Green

* Now withdrawn.

All the competing machines are biplanes, and descriptions with scale drawings of the two first, as well as of the ill-fated Cody machine, which was to have taken part, will be found elsewhere in this issue. It is with great regret that we are unable to include particulars of the Short machine entered by Mr. Frank McClean. We hoped to have been in a position to have given details of all the machines entered for the race, but although we have been at some pains to obtain the necessary information, both from the builders, Messrs. Short Brothers, and the owner, it was not found possible to enable us to include the particulars in this issue with the others.

WHAT THE COMPETITORS MUST AND MUST NOT DO.

Entrants and pilots must be British subjects.

A passenger must be carried throughout the flight, and the combined weight of pilot and passenger must not be less than 264 lbs., any deficiency being made up with ballast.

Pilot or passenger may be changed during the contest.

Machines must be entirely British built, including engine.

Entrants and pilots in the *Daily Mail* Round Britain Waterplane Race.

The competing machines must remain 30 minutes in each control, and will be examined by officials.

This time will not count in the 72 hours maximum time allowed for the course. All starts must be supervised by Royal Aero Club official and timekeeper. Competitors may start afresh as many times as they please, but only from the official starting place in Southampton Water.

Stoppages between controls may be made, but the machine must alight on the sea, estuary or harbour.

Alighting on land or inland water will end the attempt.

For the purpose of the regulations, the Caledonian Canal is considered as the sea.

Towing is not prohibited, but the machine must fly over the finishing line.

Replacement and repair of aeroplane or motor may be made, but neither may be changed as a whole.

The aircraft may be taken ashore for such repairs.

All time spent on repairs will count in the 72 hours.

No repairs may be carried out during the 30 mins. in the controls.

Five parts of the aeroplane and five parts of the motor have to be sealed, and two each of these must be in place when the machine finishes.

Each competitor will have a card which must be signed by the club official at each control.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

DAILY MAIL £5,000 PRIZE: CIRCUIT OF GREAT BRITAIN.

THE Contest for the *Daily Mail* £5,000 Prize will start from Southampton, on Saturday, August 16th, 1913, at 6 a.m.

Telegrams will be posted in the Club Rooms showing the progress of the Race.

The Royal Motor Yacht Club has kindly extended Honorary Membership of its Club to all Members of the Royal Aero Club during the period covered by the Race. The Headquarters of the Royal Motor Yacht Club is the "Enchantress," which is moored in Southampton Water off Netley Hospital.

The following competitors will take part :—

No. 1. MR. T. O. M. SOPWITH (Pilot, H. G. Hawker).

No. 3. MR. JAMES RADLEY.

No. 4. MR. F. K. MCCLEAN.

Headquarters at Southampton.

"Enchantress," at Netley Abbey, Hants.

Telegrams :—Perrin, "Enchantress," Netley Abbey.

Telephone :—Netley 2.

Officials at Southampton.

Mr. F. P. Armstrong, Mr. G. B. Cockburn, Lieut. Spencer D. A. Grey, R.N., Col. H. C. L. Holden, Mr. N. C. Neill, Mr. Alec Ogilvie, and Mr. Harold E. Perrin, Secretary. *Marking Committee*—The following officials have been appointed to carry out the marking of the competing aircraft at Southampton : Mr. G. B. Cockburn, Mr. N. C. Neill, and Mr. Alec Ogilvie.

Ramsgate.

Headquarters—Royal Temple Yacht Club. *Officials*—Mr. C. G. Grunhold, Mr. W. J. Boyton, Mr. A. H. Ramsden-Tagore, Mr. L. W. Thomas and Capt. Wildman Lushington, R.M.A.

Yarmouth.

Headquarters—Naval Air Station. *Officials*—Lieut. R. Gregory, R.N., Lieut. C. L. Courtney, R.N., Lieut. T. S. Cresswell, R.M.L.I., and Mr. H. H. Harford.

Scarborough.

Headquarters—Grand Hotel. *Officials*—Mr. A. J. A. W. Barr, Mr. B. M. Dodds, Mr. Walter E. Nicoll, and Mr. J. W. F. Tranmer.

Aberdeen.

Headquarters—Palace Hotel. *Officials*—Capt. G. W. Dawes, R.F.C., and Mr. C. I. Waldie.

Cromarty.

Headquarters—Naval Air Station. *Official*—Lieut. A. M. Longmore, R.N.

Oban.

Headquarters—Great Western Hotel. *Officials*—Mr. J. Allison, Jr., and Capt. W. A. de C. King, R.E.

Kingstown, Dublin.

Headquarters—Royal St. George Yacht Club. *Officials*—Mr. Oliver Fry, Mr. D. G. Gillman, Mr. J. C. Percy, Mr. F. Trench, Major Wellesley, and Mr. E. White.

Falmouth.

Headquarters—Royal Cornwall Yacht Club. *Officials*—Mr. Robert G. Borne, Mr. Claude Foster, Major J. D. B. Fulton, R.F.C., Capt. E. J. K. Nicholls, and Mr. A. Ireland Wright.

Death of Mr. S. F. Cody.

The news of the fatal accident to Mr. S. F. Cody on Thursday, the 7th inst., was received by all members with the deepest regret. Lord Tullibardine, the Chairman, immediately conveyed the sympathy of the members to Mrs. Cody and family.

At the funeral, which took place on Monday last, and which is reported elsewhere in this issue, the Club was represented by Mr. Frank McClean, Mr. H. DelaCombe, and the Secretary.

Mr. G. B. Cockburn, Mr. R. L. Charteris, Mr. Frank McClean and the Secretary arrived at the scene of the accident within a few hours of its occurrence and made a careful inspection of the wrecked aircraft. The Accidents Investigation Committee of the Club will hold its enquiry shortly.

Aviators' Certificates.

The following Aviators' Certificates were granted :—

No.	Date.	
572	July 18, 1913...	Able Seaman George Savill (Maurice Farman Biplane, Central Flying School, Upavon).
573	July 28, 1913...	Sergt. William James Waddington (Short Biplane, Central Flying School, Upavon).
574	Aug. 4, 1913...	E. L. M. Leveson-Gower (Blériot Monoplane, Blériot School, Hendon).
575	Aug. 5, 1913...	Louis Arbon Strange (Caudron Biplane, Ewen School, Hendon).
576	Aug. 7, 1913...	Maxime Leverrier (Caudron Biplane, Temple School, Hendon). (Subject to permission of the Aero Club de France.)
577	Aug. 9, 1913...	Leonhard Hubert Jagenberg (Caudron Biplane, Ewen School, Hendon). (Subject to permission of the Aero Club of Germany.)

The following Certificate was taken in France :—

Capt. Owen Mostyn Conran.

Gordon-Bennett Aviation Cup.

The race for the Gordon-Bennett Aviation Cup will be held at Rheims on September 29th, 1913. The Royal Aero Club have sent in entries on behalf of Mr. Gustav Hamel, Mr. James Valentine and the British and Colonial Aeroplane Co., Ltd.

Gordon-Bennett Balloon Race.

The Gordon-Bennett Balloon Race will take place from Paris on Sunday, October 12th, 1913. The Royal Aero Club will be represented by Mr. John Dunville and Mr. Jean de Francia.

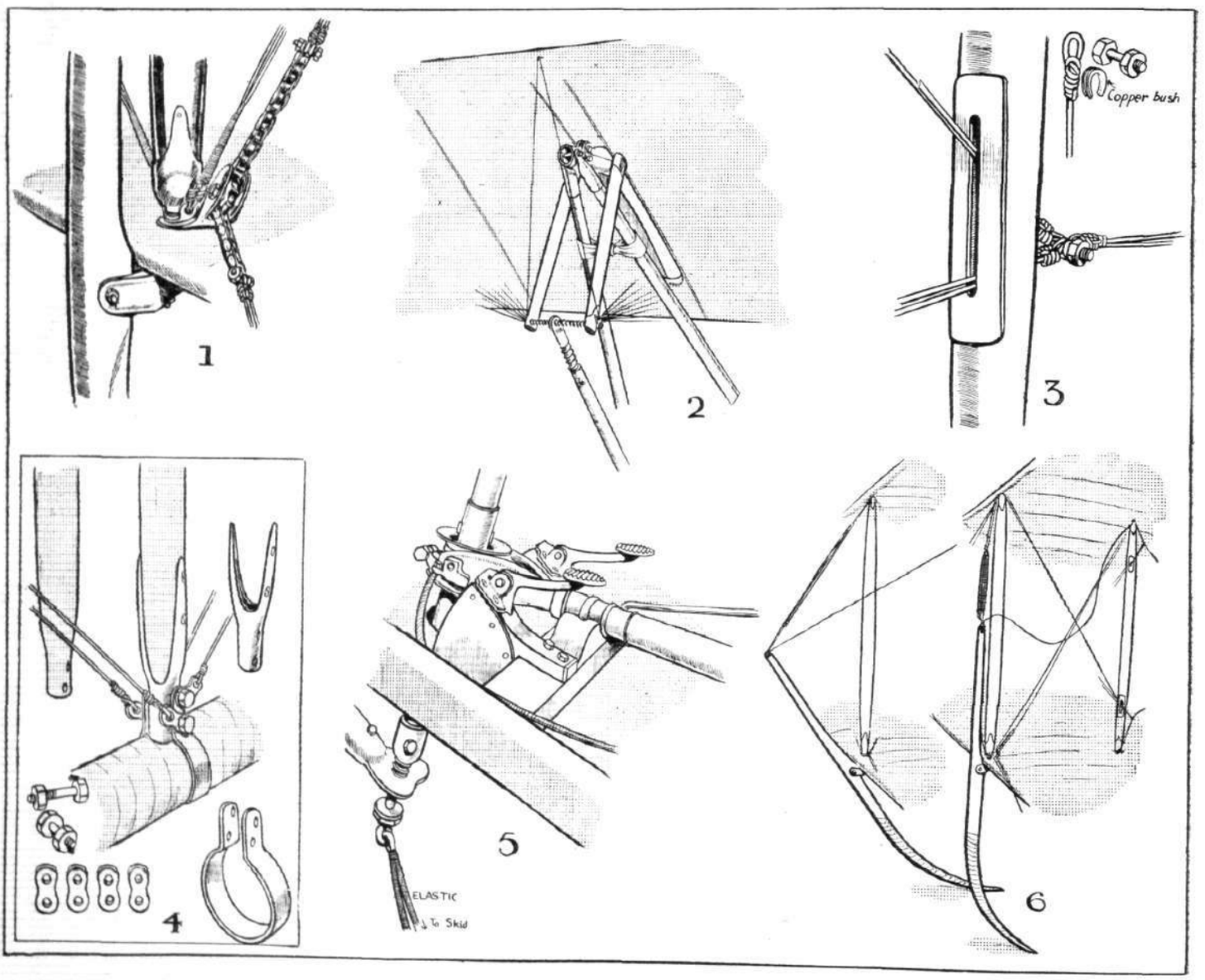
166, Piccadilly, W. HAROLD E. PERRIN, Secretary.

THE *DAILY MAIL* ROUND BRITAIN RACE.

THE CODY WATERPLANE.

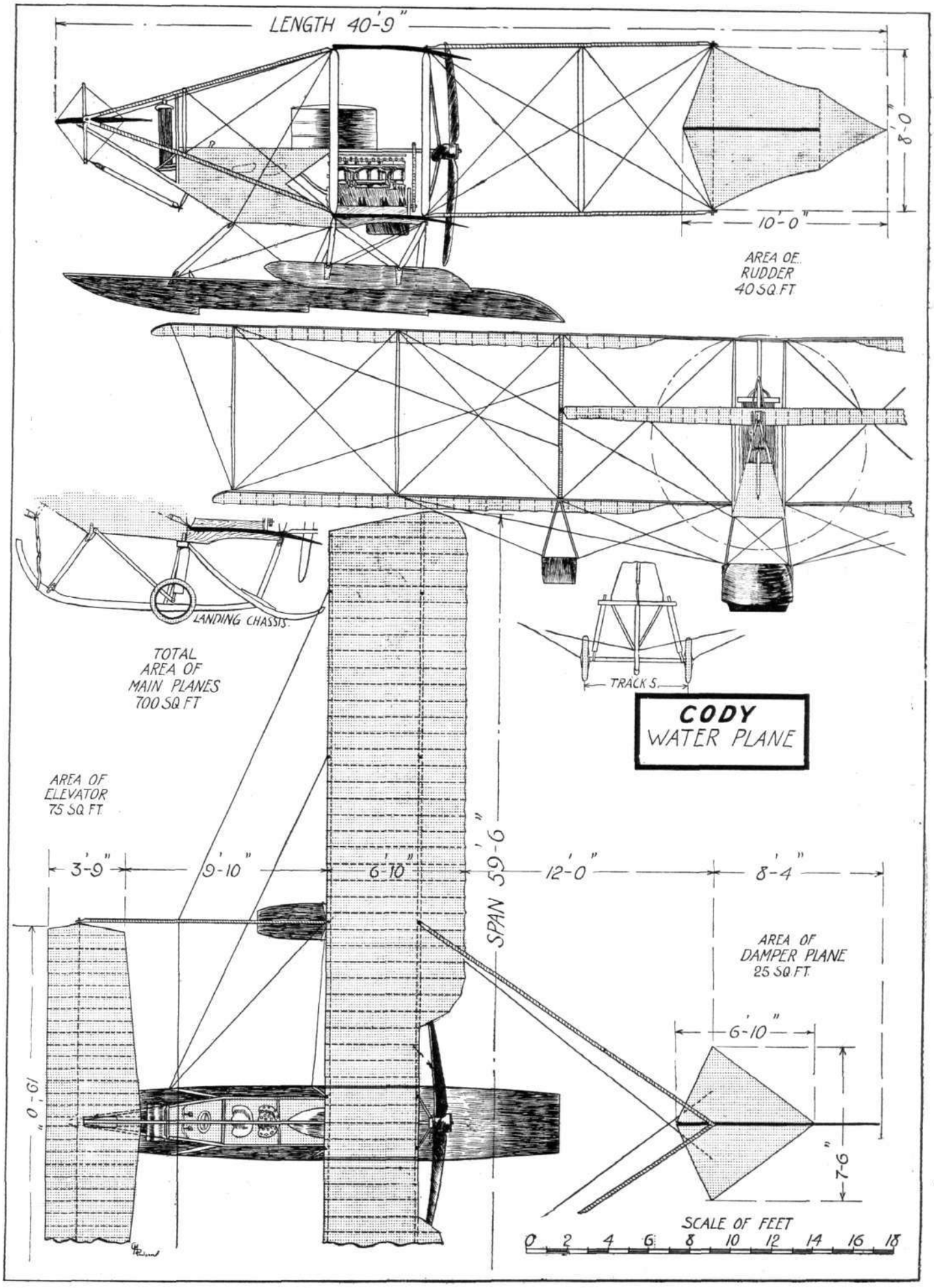
No doubt most of our readers will agree that in no better way could we honour the name of the great pioneer, than by publishing illustrations and particulars of the latest machine built by the late Col. S. F. Cody for the *Daily Mail* race round Britain, the machine in which he had incorporated all the improvements that his great experience and ever-alert inventive genius had suggested to him, and of which his opinion—as expressed by himself a short time before his death—was that she was "A beauty, and as steady as a rock." We believe that the scale drawings and sketches of the Cody Waterplane, which we publish herewith, and which were made a few days before Mr. Cody's death, are the only complete drawings available of the ill-fated machine, and they should therefore be of exceptional value to all who have followed with interest the work of the great pioneer.

Size and weight have always been the characteristics of Cody machines, and it was only to be expected that for a contest like the *Daily Mail* Round Britain Race, which will impose upon both pilot and machine much more severe strains than any to which aeroplanes have hitherto been subject that these characteristics would be retained, and as regards dimensions and weight the Cody is far in excess of any of the other machines entered. In this latest machine the span of the main planes has been considerably increased, while the overall length has been greatly reduced by bringing both the front elevator and the rudder closer in towards the main planes. It will be remembered that the machine on which Mr. Cody won first prize in the Military Competition last year had two rudders of cruciform shape. In the present machine only a single rudder is fitted, which has consequently had to be made of much larger area, situated, as it is, closer to the main planes, and therefore working on a smaller leverage. One of the features of the earlier Cody biplanes has disappeared, *i.e.*, the divided front elevator, which worked in conjunction with the main planes for maintenance of lateral stability. In its stead is fitted an elevator of more orthodox type, which has a slot cut in the centre for the accommodation of the central elevator booms. These, as well as the tail outriggers are made of bamboo bound with fabric. The



"Flight" Copyright.

THE CODY WATERPLANE.—1. A typical strut socket and swivel joint of skid to main plane. 2. Attachment of elevator to central outriggers. 3. Sketch showing method of carrying warp wires through struts. 4. Analytical sketch of joint between tail boom and strut. 5. Universal joint and pedals operating engine controls. 6. A novel form of wing skid.



THE CODY WATERPLANE.—Plan, side and front elevations, &c., to scale.

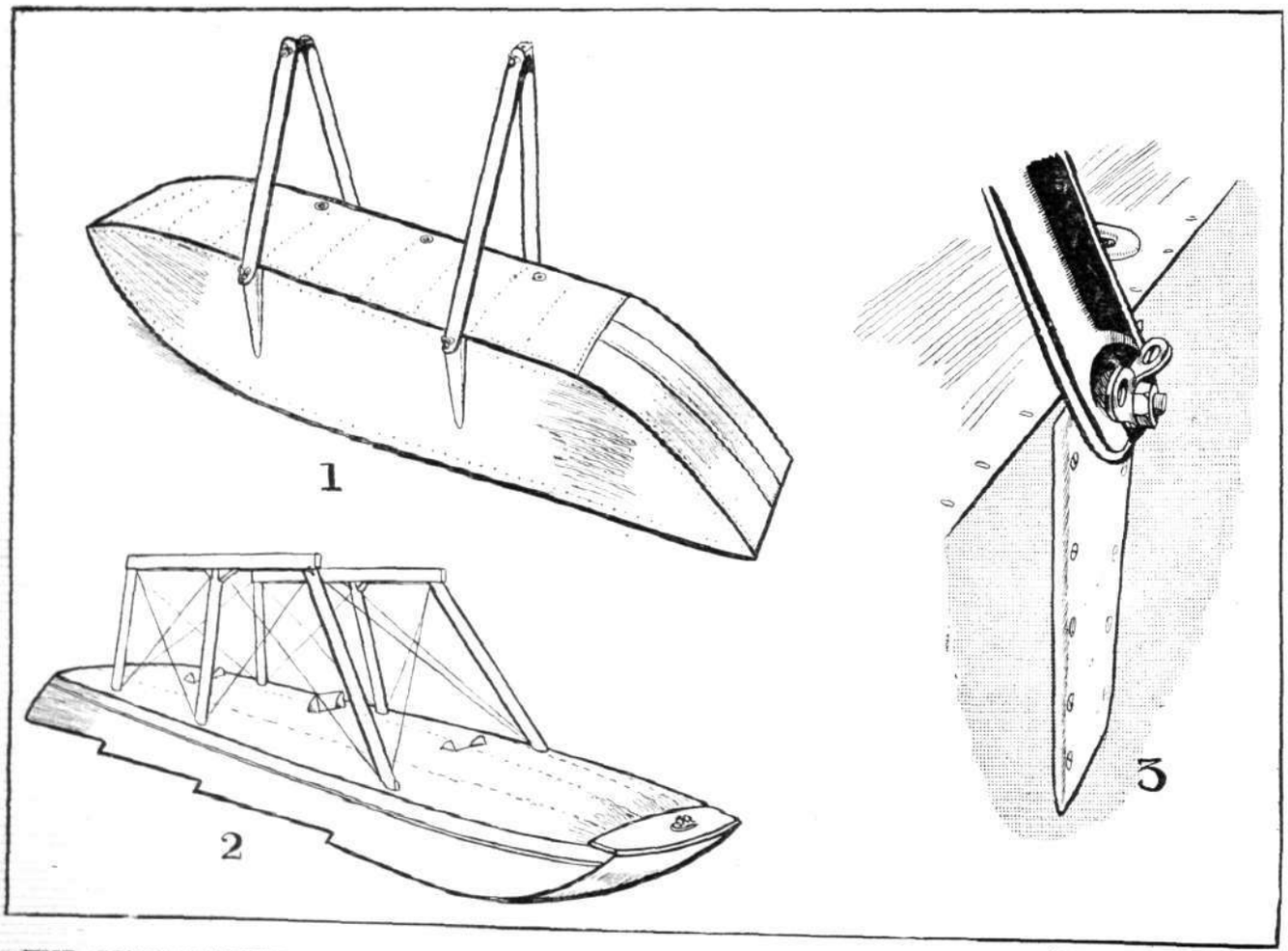
nacelle is of a slightly different form to last year's model, providing better accommodation for the pilot's and passenger's seats, which are placed tandem fashion, and which are still of the type more commonly associated with farm implements. A 100 h.p., 6-cyl., all-British Green engine, furnishes the power, and drives through chain and sprocket gearing a propeller of 10 ft. 8 ins. diameter. For experimental purposes a four-bladed Garuda propeller was fitted, which was exchanged later for one of British manufacture (the latter being on the machine when the mishap occurred). The petrol tank, which has a capacity of 60 gallons, is situated above and behind the passenger's seat, while a supply of 14 gallons of oil is carried in a smaller tank situated underneath the engine.

Eight pairs of struts of silver spruce connect the main planes, which are of the typical Cody section, characterised by a deeper camber on the underside of the wing than that on the top. For maintenance of lateral stability, the main planes are warped by moving the control lever from side to side. A to and fro movement of the steering column operates the elevator, whilst rotation of the hand wheel actuates the rudder. It will thus be seen that the feet of the pilot do not perform any function in the control of the machine, and are therefore left free to operate the accelerator and ignition pedals fitted on the floor board of the *nacelle*. An interesting feature, and one that is not generally known in connection with the Cody control, is that the rudder works in conjunction with the warp, so that in correcting a bank the rudder is put over just sufficiently to counteract the drag on the lower side without any necessity for turning the handwheel.

For use as a land machine, a chassis of somewhat modified form to that of the earlier types is fitted, it having been designed with a view to facilitate interchangeability with floats, and in the accompanying scale drawings we show both types of chassis. The floats, of which there are three, are of Mr. Cody's own design, from which he expected excellent results, but which, unfortunately, he never got a chance to fully test. The main or central float, which is of enormous size, has three steps of peculiar design, while the two smaller floats are of the plain or punt shape. While the smaller floats are situated higher up than the main floats, they are still sufficiently far down to be always in contact with the water until the machine is just about to rise, so that it will be very stable when at rest or taxying on the water. Cedar and mahogany are the materials used in the construction of the floats, the main float being provided with a canvas deck. The speed of the machine is 50 to 60 m.p.h., and the weight, when empty and fitted with the land chassis, is about a ton.

Propellers on Cody Machine.

IN view of the fact that it has been published that the Integral Propeller Co., Ltd., were building an all-British Cody four-bladed propeller for the *Daily Mail* Waterplane Race, it should be noted that this propeller was not on the machine at the time of the accident, but was as a matter of fact to have been despatched from the Integral works on the following day.



THE CODY WATERPLANE.—1. One of the side floats. 2. Diagrammatic sketch of main float. 3. Attachment of tubular strut to side float.

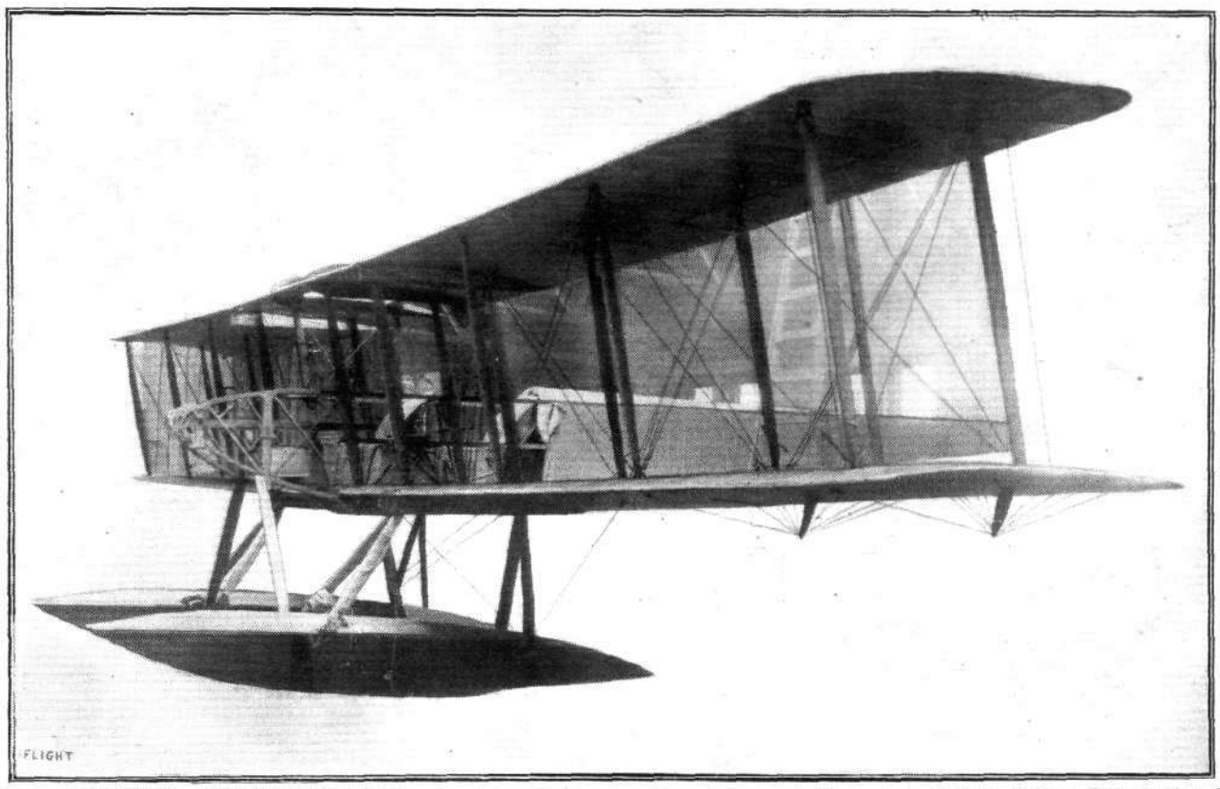
FLIGHT

THE SOPWITH TRACTOR WATERPLANE.

HAVING already achieved such remarkable success with his tractor-type land machine, Mr. Sopwith decided to enter a biplane of this type, fitted, of course, with floats instead of wheels, for the *Daily Mail* Race Round Britain, in preference to one of the Bat boat type, and in consideration of the large open stretches of sea which have to be negotiated, we are inclined to think that he has chosen wisely.

In its general outlines, this machine possesses the same smart business-looking appearance which characterises the land machines, further enhanced perhaps by the tapering nose of the *fuselage*, allowed of by the installation of a 100 h.p. six-cylinder vertical type British Green engine, instead of the 80 h.p. Gnome motor with which the land machines are usually fitted. The *fuselage*, which is of rectangular section is built up in the usual way of four longerons of ash, connected by struts and cross members. In the rear part of the body these are made of spruce, while in front, where the weight of pilot, passenger and engine is concentrated, and where, therefore, greater strength is required, these members are made of ash. The main planes, which are very strongly built over main spars of solid spruce of I section are slightly staggered, and are also set at a dihedral angle in order to give the machine a certain amount of lateral stability. From a point just behind the pilot's seat back to the rudder post the *fuselage* is covered in with fabric, whilst the front portion is covered with aluminium, forming on top of the nose of the *fuselage* a very neat and cleanly designed cover over the motor. A very interesting detail in connection with the mounting of the Green engine forms the subject of one of the accompanying sketches which is self-explanatory. This method of joining the engine-bearer to the strut makes an enormously strong job, and this joint serves very well as an example of the thoroughness and attention to detail which is typical of Sopwith construction.

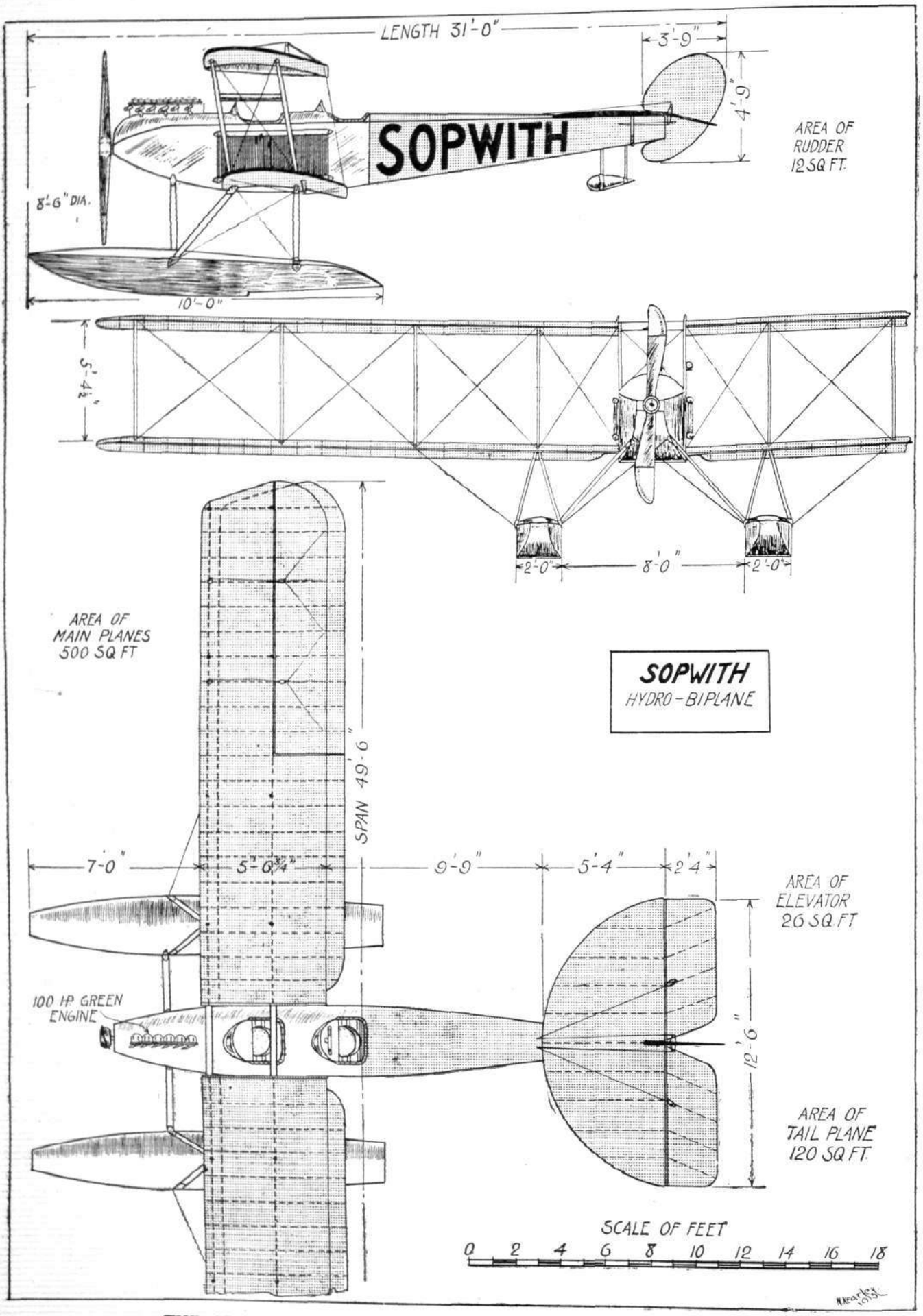
The main floats, which have been built by the Sopwith Aviation Co., are of the single step type and are built up of a framework of ash and spruce covered with a double skin of cedar. Two bulkheads divide the floats into three watertight compartments, so that should a float become damaged, causing one compartment to leak, the other two would still have sufficient buoyancy to prevent the float from sinking very deeply into the water. Two pairs of inverted V struts connect each float with a lower main plane, while another pair of struts running to the front part of the *fuselage* help to take the weight of the engine. Spruce is the material used for chassis as well as plane struts, the latter being hollowed out for lightness.



THE SOPWITH WATERPLANE.—A view of the machine taken at the works before being dismantled for transport to Southampton for the *Daily Mail* Race.

Inside the comparatively deep *fuselage*, where ample protection against the wind is afforded to pilot and passenger, are the two seats arranged tandem fashion, the pilot occupying the rear seat. In front of him are the controls, which consist of a rotatable hand wheel, mounted on a single central tubular column. Rotation of the wheel operates the ailerons, which are fitted to both top and bottom planes, and which are inter-connected. A to and fro movement operates the elevator, while a foot bar actuates the rudder. It should be noticed that the control cables are only exposed to the effects of the air and salt water for a very short length, the elevator cables entering the body just in front of the fixed tail plane and the rudder cables a couple of feet from the rudder post. The engine is supplied with petrol and oil from tanks situated under the passenger's seat, the capacity of the tanks being 45 gallons and 10 gallons respectively.

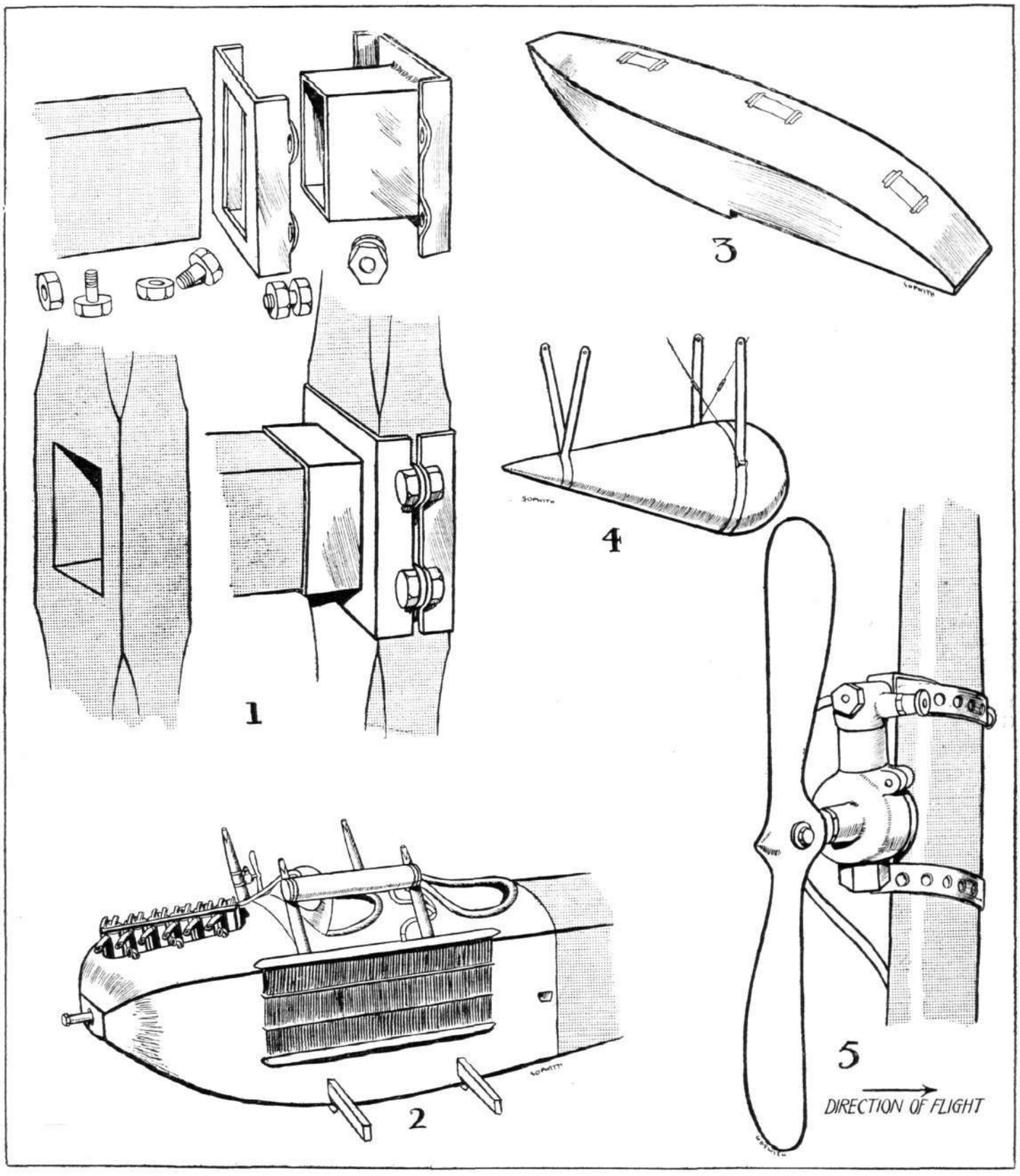
For the purpose of easy egress in case of a smash, the centre portion of the top plane has been left uncovered.



THE SOPWITH WATERPLANE.—Plan, side and front elevations to scale.

In order to minimise end losses due to the air spewing out of the opening thus produced, what might be called baffle plates have been fitted to the inner ends of the wing.

These baffle plates have been made streamline in section, as it was found that an ordinary thin board would bend owing to the pressure of the air trying to escape past it. With full load of fuel and passengers on board the weight of the machine is 2,400 lbs., and her flying speed is 60 to 65 m.p.h.



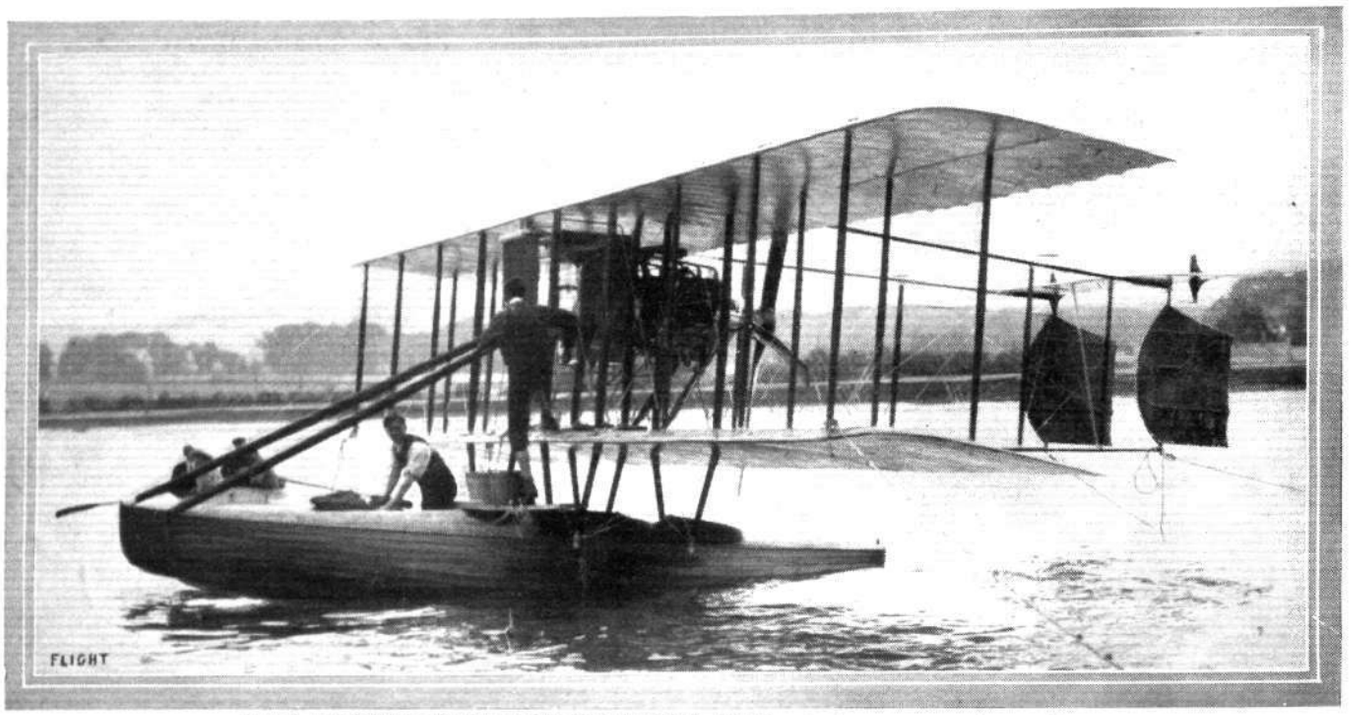
THE SOPWITH WATERPLANE.—1. Analytical sketch, showing method of joining engine-bearer to *fuselage* strut. 2. Three-quarter front view of *fuselage*, showing engine housing and radiators. 3. One of the main floats. 4. The tail float. 5. Petrol pump.

THE RADLEY-ENGLAND WATERPLANE.

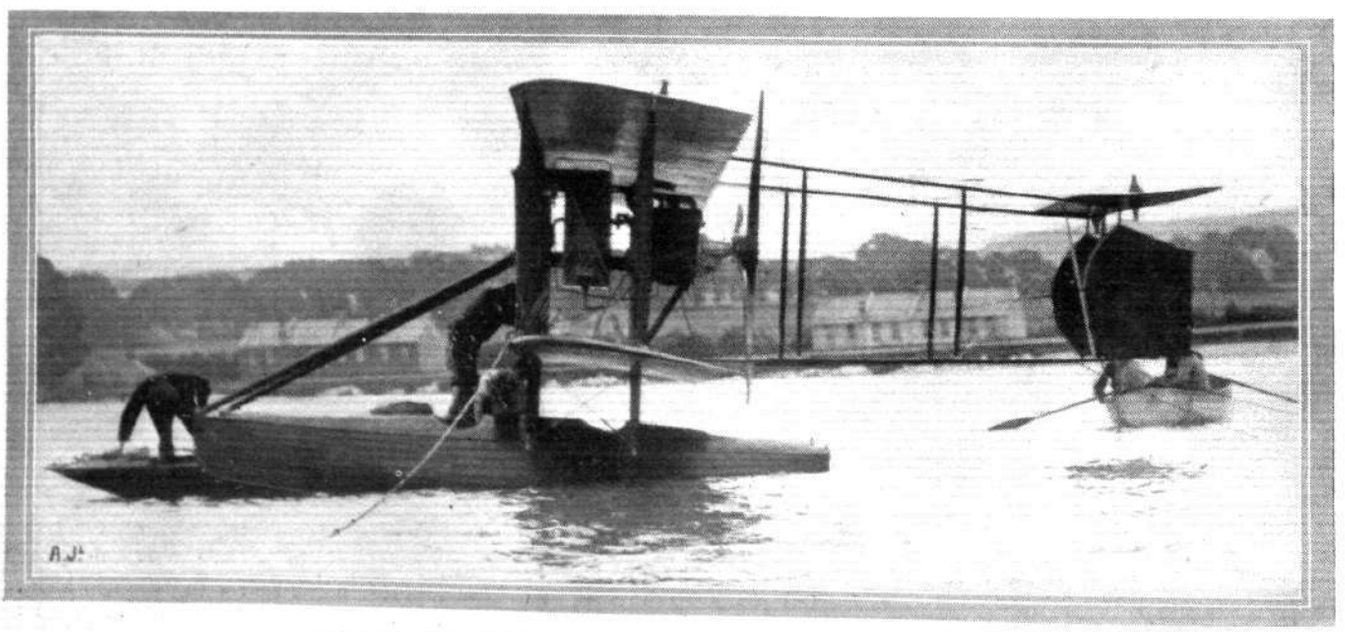
SINCE Messrs. J. Radley and G. England built their first experimental machine some months ago, the rough idea for which was provided by Mr. Radley and the design elaborated by Mr. England, they have gained a lot of experience with this type of waterplane. Evidently this experience has strengthened their faith in the flying boat—or rather boats—type, for the biplane which they had entered, although, unfortunately, through engine troubles, withdrawn at the last moment, for the *Daily Mail* Race, differs, except, of course, for such alterations as have been necessitated by the installation of a 150 h.p. Sunbeam engine, instead of the three 50 h.p. Gnome motors, very little from the first experimental machine.

As the most noticeable innovation is in the shape of the floats, we will refer to this first. It will be remembered that the first biplane was fitted with floats of the punt type, but it was found that they were not strong enough, so in the present machine they have been abandoned for boats.

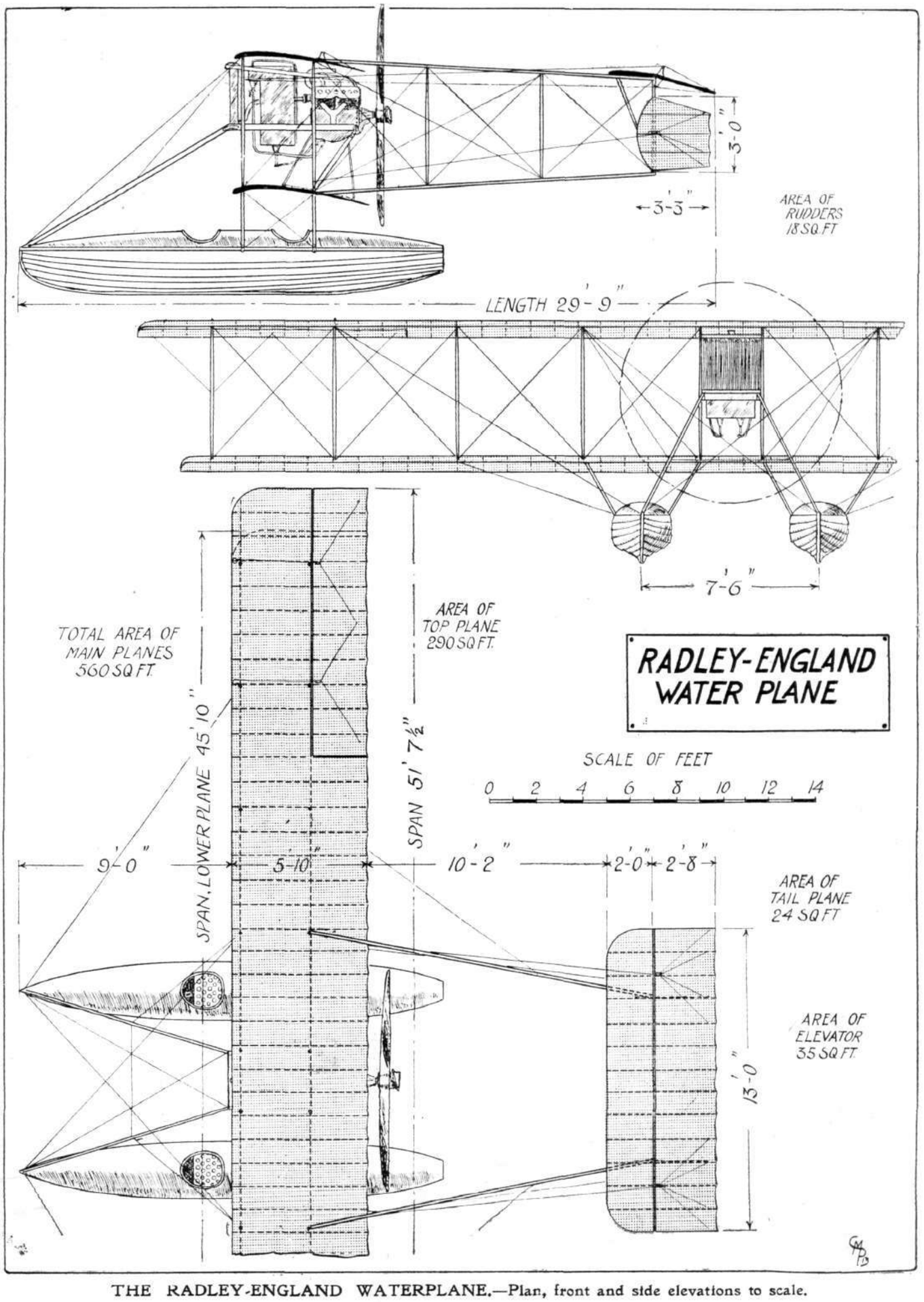
These, which were built locally by the South Coast Yacht Agency, while not being a great deal heavier than the punt type, are very much stronger, and have the further advantage of being less liable to leak, owing to the fact that they are clinker-built. As some of our readers might be a little in doubt about the exact meaning of the term clinker-built, it may be explained that a boat is said to be clinker-built when the outer boards or planking do not butt up against one another with their edges, but overlap each other a little. Boats of this type are known



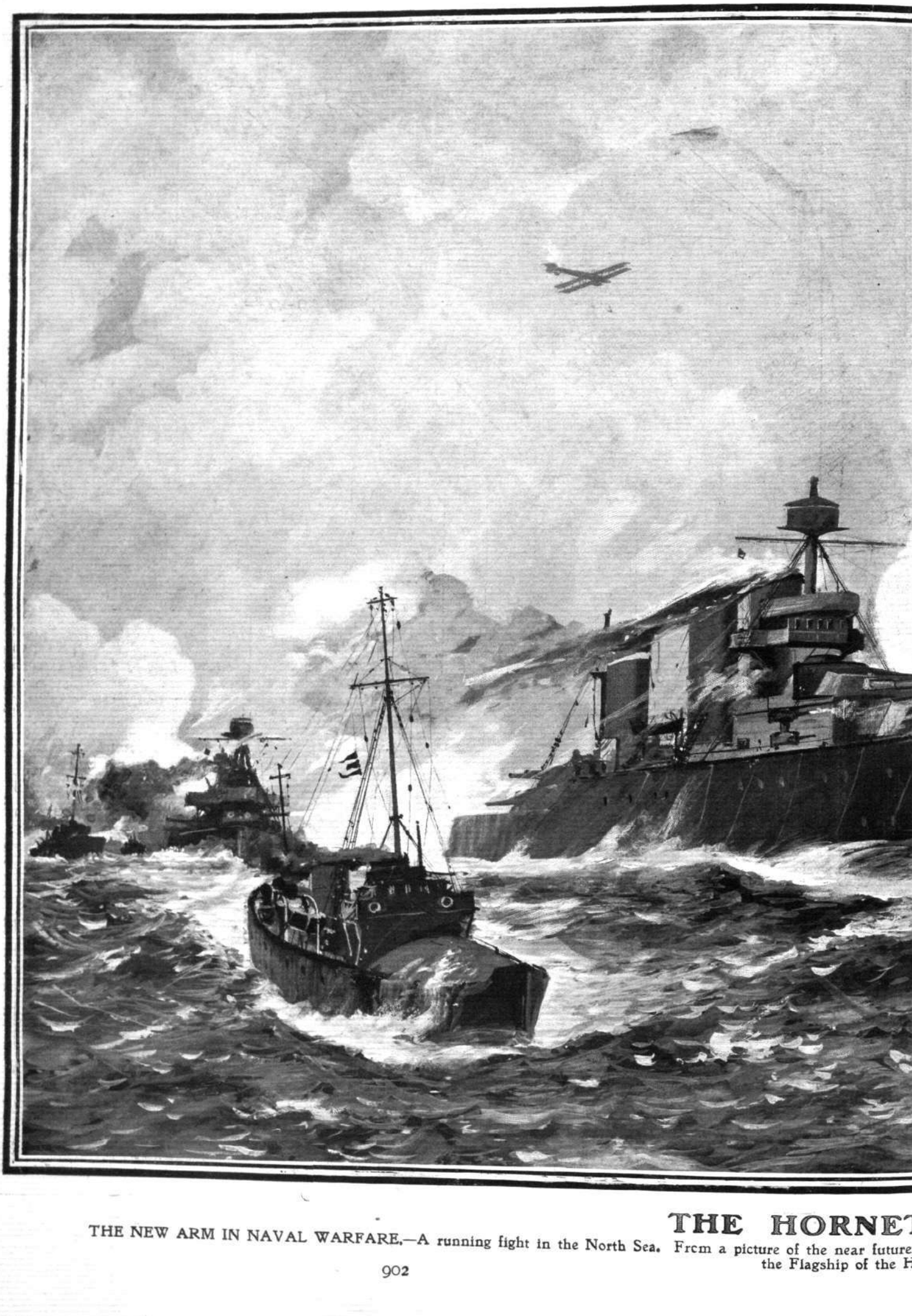
THE RADLEY-ENGLAND WATERPLANE.—A three-quarter front view.



THE RADLEY-ENGLAND WATERPLANE.—A side view.



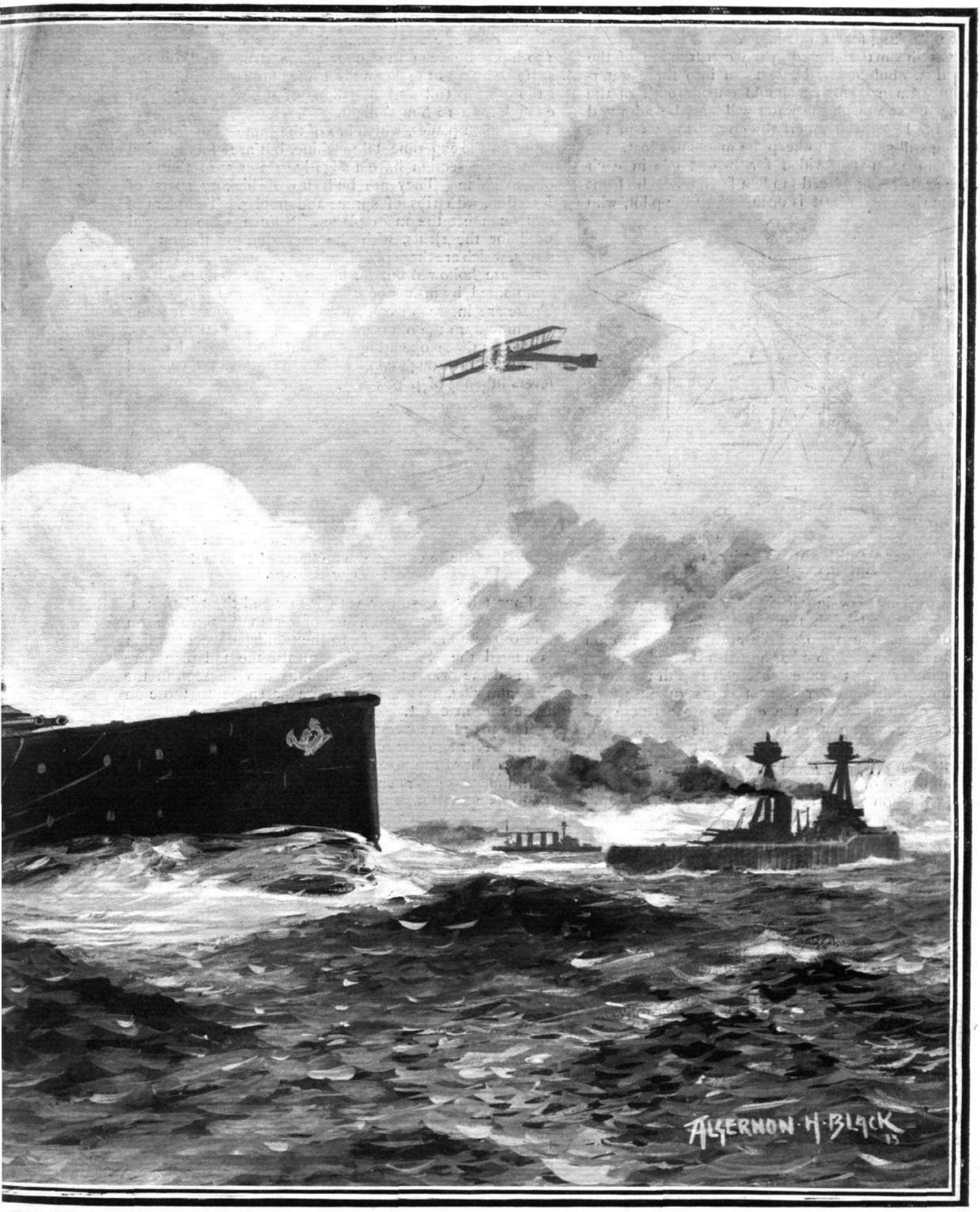
THE RADLEY-ENGLAND WATERPLANE.—Plan, front and side elevations to scale.



THE NEW ARM IN NAVAL WARFARE.—A running fight in the North Sea. From a picture of the near future

THE HORNET

the Flagship of the H



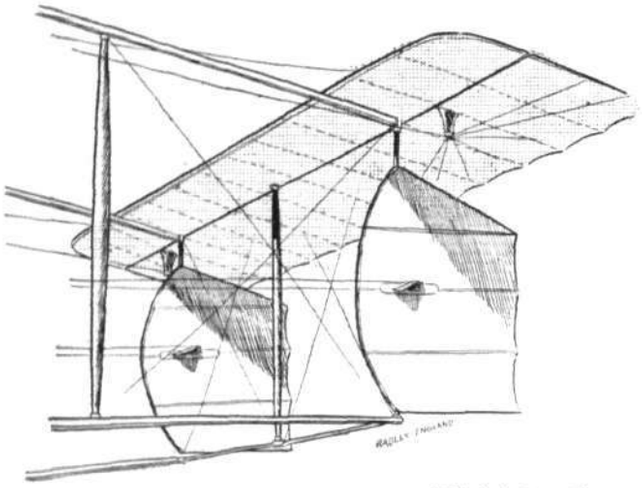
OF THE AIR.

. H. Black, showing naval aircraft in operation in conjunction with the "Princess Royal" (First Battle Cruiser Squadron), leet, the "Neptune," &c.

to be much stronger, weight for weight, than those in which the planking forms butt joints.

Cedar is the material used in the construction of the boats, and two bulkheads divide them into three watertight compartments, so that should one or both of the boats become swamped, the water will only be admitted to the central part, the watertight compartments in the ends being still sufficient to keep the machine afloat.

Accommodation is provided for two people in each float, the seats being placed tandem fashion. The front seat in the right hand boat is occupied by the pilot, who has an excellent view in all directions. The controls consist of a central lever, the side-to-side movement of which operates the warp, while a to and fro motion works the elevator. A foot-bar actuates the rudder.



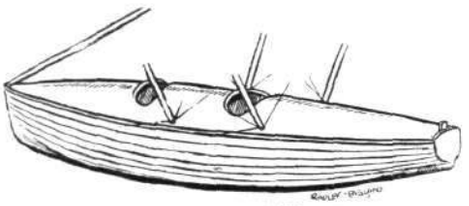
"Flight" Copyright.

Sketch showing arrangement of tail planes of Radley-England waterplane.

Two pairs of struts connect each float with the lower main plane, whilst another pair of struts running from the prow of the boats to the engine bearers take the oblique stresses set up when the machine alights on the water.

Mounted on very strong bearers is the engine, a 150 h.p. 8-cyl. Sunbeam of the V-type, driving through a two to one reduction gear, a 4-bladed Lang propeller of 9 ft. 6 ins. diameter, 4 ft. 7 ins. pitch. Normally the engine runs at 2,200 r.p.m., at which speed it develops 150 h.p. Between the inner plane struts, and on the same bearers as the engine is a huge tank containing 82 gallons of petrol and 8 gallons of oil, which supply is enough for a 10 hours' flight.

The main planes, which are of the same plan form as those on the experimental machine, but are of a modified monoplane section have a slightly greater span than the old machine. They are built up of hickory spars of I section, with ribs of spruce and poplar. Ten pairs of struts connect the main planes. Spruce is the material used for the struts, with the exception of the engine struts, which are three-ply Honduras mahogany, and all the struts are hollowed out for lightness. Lateral stability is maintained by means of *ailerons* on the top plane only. These are interconnected, Farman fashion, so that when one moves up the other moves down. The warp cables, as well as those operating the rudder, are carried round pulleys, and through copper fair leads down to the control levers in front of pilot's seat.



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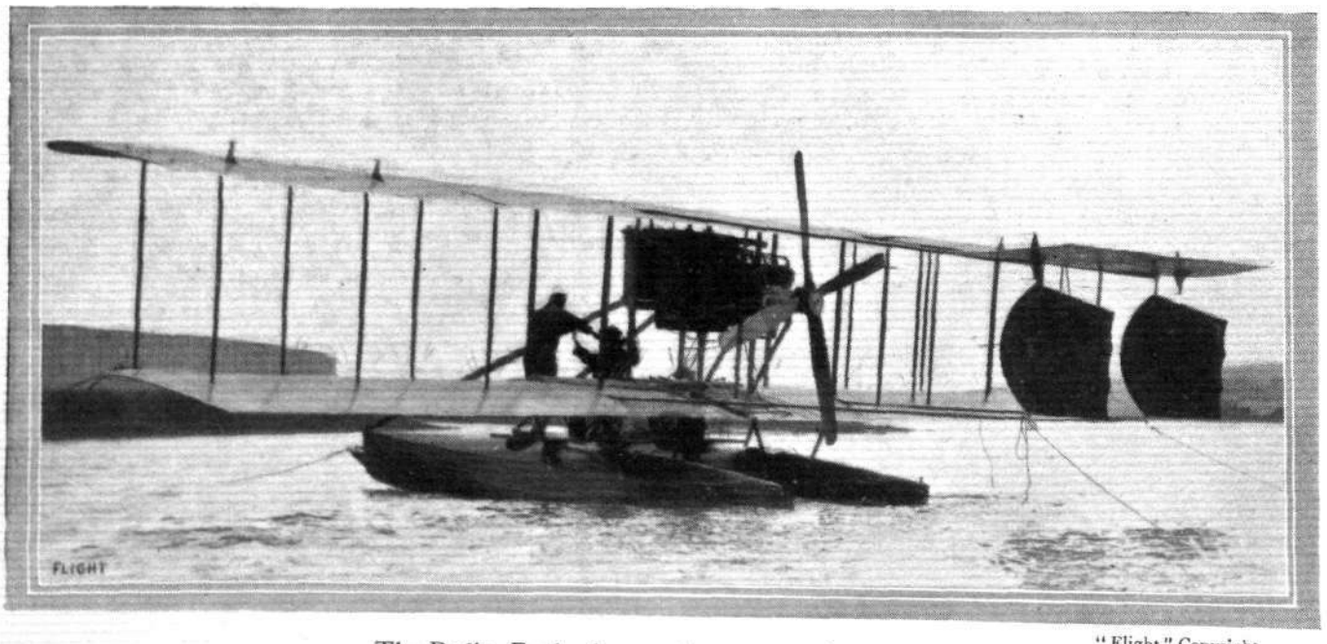
Sketch of one of the main floats of the Radley-England waterplane.

Four tail booms carry at their rear end the tail planes, consisting of a fixed tail plane of rectangular plan form and of the non-lifting type, to the trailing edge of which is hinged the elevator. Underneath the tail plane are situated the twin rudders which, as can be seen in the scale drawing, are of exactly similar shape to those on the earlier machine.

The planes are covered with brown Holland, which is rendered air-tight by being doped with British Emaillite. The weight of the machine in flying order, that is to say, with four passengers and sufficient fuel for a 10 hours' flight, is 2,500 lbs., and her flying speed is 60 m.p.h.



The Radley-England waterplane as seen from behind

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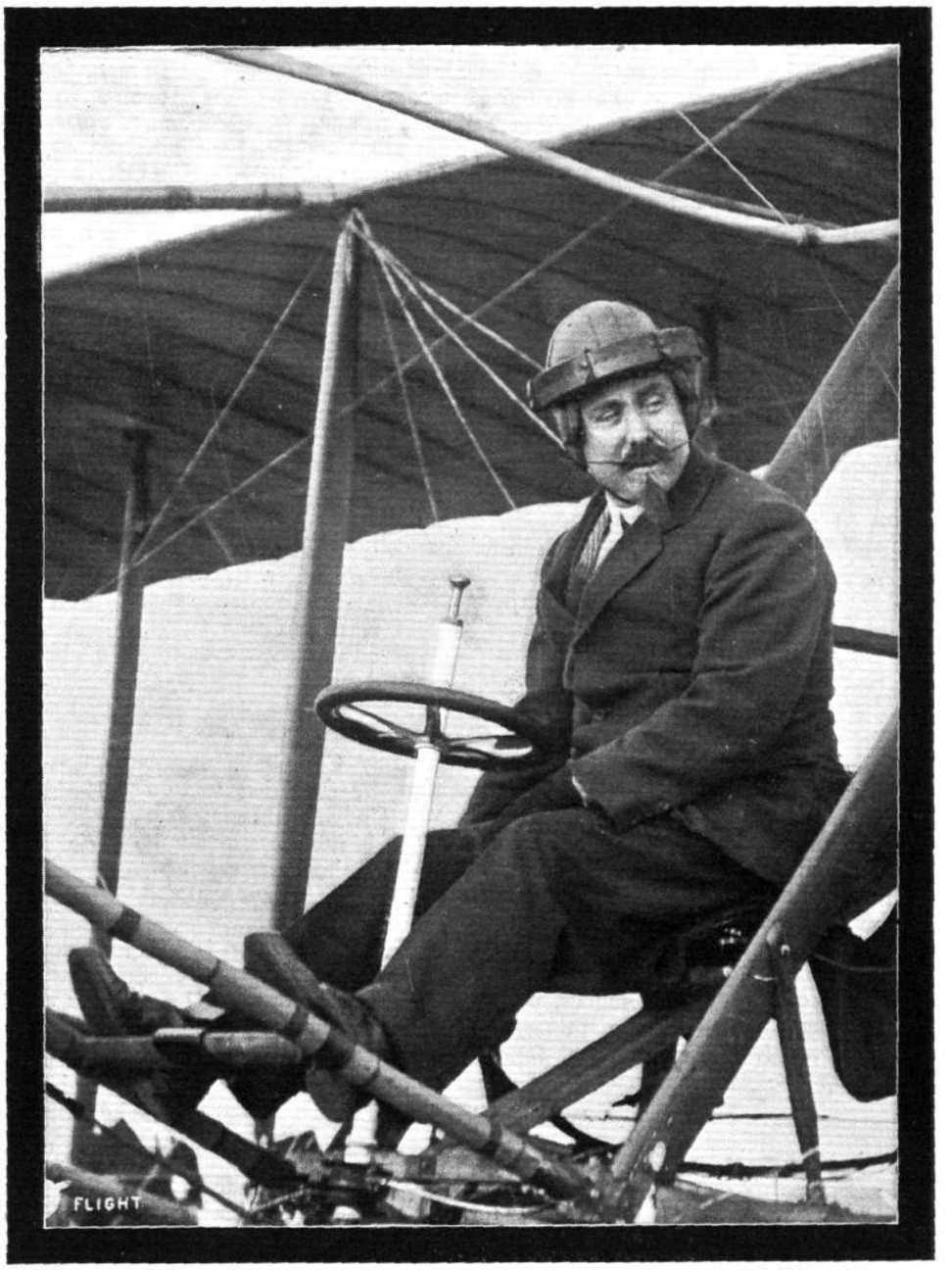
S. F. CODY—THE MAN AND HIS WORK.

It is with a sense of personal as well as national loss that we sit down to pen our contribution to the mass of appreciation and sympathy which has been called forth by the tragic death of Colonel S. F. Cody while flying the machine with which he had hoped to have added yet another success to his aerial career, in the shape of the Round-Britain prize. So much has been written of Cody, the aviator and the man, that it is difficult for us to know where to begin or what to say without once more traversing the ground that others have trodden already. Moreover, the loss that British aviation has sustained, and the affection inspired by the man as we knew him, make it doubly difficult for us to express what we feel in this, one of the most tragic moments in the history of aviation in this country. Not since the death of poor Rolls has anything happened to leave those who have an active interest in the movement with such a keen sense of the tragical and of really personal loss, for Cody was a magnetic personality, and attracted everyone who came into contact with him even casually.



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S. F. CODY.—A characteristic portrait of this famous aviator who was killed last week.

Cody was of the real type of which pioneers are made. In the face of discouragement and disaster which would have driven any less enthusiastic or indomitable man to utter despair, he persevered, always with an abiding faith in himself—a faith which latter days showed to be fully justified—until, at last, success came his way. That he should have been thus cut off just when it looked as though he were to reap the full reward of his pluck and perseverance seems doubly hard, but it is often thus, and the only consolation his family and friends have in their loss is that he died as he would have wished—in the very act and fact of working for the furtherance of that great movement he loved.

With all respect to the occasion and to the sorrow of the bereaved who remain on earth, one may be permitted to hope that the spirit of S. F. Cody was able to know something of his funeral ceremony. To have seen the crowds that lined the wayside, many deep, from his simple home near North Camp Station at Aldershot, all the way along the two and a-half mile route, that wound its way to the military cemetery on the hill-top, would have brought home to the dead man how deeply he had cut his name in the hearts of the people.

It is said that no fewer than a hundred thousand men, women and children thus paid their last token of respect to Cody. Certain it is that there has never been a more impressive funeral at Aldershot, where there have been many funerals of note; and certain it is also that no individual has ever drawn into his *cortége* such a completely representative gathering of his life's companions as followed on Monday of this week the gun-carriage that took Cody's remains to the grave.

For nearly a mile the road was filled with the solemn procession, headed by the Pipers of the Black Watch.

The coffin was carried on a gun-carriage and was covered with the Union Jack; on the Union Jack was a simple but expressive floral tribute in the form of an aeroplane wheel. But of the wreaths that were placed on the graveside there were literally hundreds. They came from all classes and from all quarters. Military and naval detachments, including large contingents from the Naval and Military wings of the Royal Flying Corps, carried innumerable such tributes from officers and men in the Army. It was, in short, in every sense a fittingly observed occasion, for Cody deserved this homage to his memory with the worthiness of a true pioneer.

It is as a pioneer that Cody will always be remembered by those who knew him best, and who appreciated, as perhaps he himself did not always appreciate, the salient points of his remarkable personality. He was a man who was fired with the inspiration of enthusiasm for the matter in hand, with the energy and physical strength to work unaided, with the courage to take personal risks, and with the perseverance to be buoyed up in the face of failure.

There was no finality in his outlook upon the realm of flight. So soon as he had one type of machine within a reasonable measure of ultimate success, he was thinking and planning some new model for the future. His ideas always sought expression on a large scale. His ambition was to develop the large machine. The difficulties of its construction daunted him not at all. He was prepared to progress in the future as he had progressed in the past, by sheer physical effort under the guidance of the lessons of personal experience.

It was thus that he approached the practice of aeroplane construction and flying in the early days, after he had succeeded in proving the merit and utility of his military kites. For his kite work alone his name would be worthy of much honour in the world of aeronautics. England gives little encouragement to beginners; and it was little enough that Cody received of this kind, yet, in the end, and in spite of all, he made good. Month after month and year after year he persevered. His successes were well deserved, as they were indeed popular. His victories in the Michelin prize were the most notable next to his winning of the British Military Aeroplane Trials last year, which, as Fate has ordained it, was the crowning achievement of his life.

He was far from a young man, being already 51 years of age, but when the Royal Aero Club sent as their floral tribute to the funeral a broken column, they sent the most appropriate symbol of all, for Cody enjoyed the vigour and the good spirits of continual youth, and his work in the world of aviation was far from done.

Need we say that we feel the profoundest sympathy with the widow and the family he has left to mourn him? It is on these occasions that we must feel how utterly inadequate are words to express our real feelings—there is nothing we can say that will alleviate the sorrow of those who were nearest and dearest to the dead hero, for such he was, and we cannot but feel that after all it is silence that is golden.

Nor must we forget to express our sense of profound sorrow at the untimely death of the brilliant athlete who met his end in the disaster which has robbed aviation of its most picturesque figure. It was not in a spirit of idle curiosity, or in search of a new sensation, that Mr. Evans accompanied Mr. Cody in the fatal flight. It was in the seeking after knowledge that Mr. Evans gave up his life. That is some consolation, albeit but poor, for the bereaved ones he leaves to mourn his loss.

A CODY MEMORIAL.

COLONEL MASSY sends us the following *communique* in regard to the proposed memorial to the late S. F. Cody:—

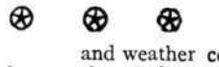
"The great public demonstration of sympathy at Aldershot, the greatest which has for many years taken place at the funeral of a private British citizen, encourages the Aerial Leagues to organise a public subscription for the relief of Col. S. F. Cody's widow and orphans, who have been left in very straightened circumstances.

"The Joint Committee of the Aerial Leagues, with the approval of Mrs. Cody, trust that the powerful support of FLIGHT which was given last year to the fund raised by the Leagues for the widow and orphans of Lindsay Campbell, the Australian aviator, may once more be extended to a great National subscription for Mrs. Cody and her family.

"It is unnecessary for the Aerial Leagues to set forth in detail the great services rendered to our country by Col. Cody. The wreath which they sent was inscribed 'In honour of a brave man, who served the Empire well,' and at least 100,000 Britishers endorsed that pronouncement by attending his funeral.

"Subscriptions may be sent to Col. H. S. Massy, C.B., 25, Denison House, Vauxhall Bridge Road, S.W.

"All cheques and postal orders should be crossed, 'Lloyds Bank, West Kensington.'"



Questions in Parliament.

ON Monday in the House of Commons Sir J. Rees asked the Secretary for War whether engines for airships, aeroplanes, and waterplanes could be, and were being, constructed in this country; whether firms making such craft were in receipt of regular orders from the War Office; whether there was any factory in this country in which a rigid or other airship could be, and was being, constructed; and whether, in time of war, aircraft or parts thereof could be imported into the United Kingdom.

Mr. H. Baker in reply stated that the answer to the first three parts of the question was in the affirmative; to the fourth part, that in time of war aeroplanes and their component parts and accessories are regarded as conditional contraband under the Declaration of London.

The Central Flying School for India.

IN his annual statement with reference to Indian finance in the House of Commons on the 7th inst., Mr. Montagu, the Under-Secretary for India, said that the most interesting new feature in the Army expenditure for this year was the amount set aside for the formation of a Central Flying School. At first sight one would be inclined to suppose that in a country where the conditions of wind and weather could, as a rule, be anticipated with certainty some time beforehand, the difficulties of flying would be much less than they were in this country. But he was informed by experts that the extremes of heat and cold, the variations of temperature, and the differences of radiation over cultivated and desert areas give rise to new difficulties. The type of machine best suited for India had yet to be ascertained, and in order to avoid any unnecessary risks to our flying officers we must discover to what extent heat and moisture, and especially the combination of the two, might affect the materials which had been found most useful in the manufacture of aeroplanes in this country. The Government therefore proposed to start the flying school on a very modest basis, and to confine the work in the first instance to experiments, and not to include the tuition of beginners. It was intended to begin with four officers, all of whom were in possession of pilot certificates. They would be provided with six aeroplanes for experimental purposes. The school would be situated at Sitapur, in the United Provinces, where there was a large number of Government buildings which were now unoccupied, which were formerly British Infantry barracks, but which, he was told, were very suitable to our purpose. The total estimate for this year was about £20,000.

FLIGHT

ARMCHAIR REFLECTIONS.

By THE DREAMER.

Cody.

Cody is Dead:
And in my heart I find no sorrow,
But in its place, a wicked, spiteful hate,
A hate of everything, even of to-morrow—
To-morrow, which is not and cometh never
Even as Time and called To-day,
Could not unite what Fate thought well to sever—
A Personality Immortal; a Body Clay.

Cody is dead, and all the World's agasp. I penned the few lines that head this article before I had been anywhere to hear what other people said: that was just how it struck me. I did not feel the kind of sorrow that generally comes on these awful occasions. I did not say to myself "Oh, I am sorry." I just simply felt that somebody had done me an ill-turn. I was a good many miles from London when I heard the news—or rather saw it, and my feelings found vent in one strongly expressive word. Coming home in the train I was thinking the whole thing over. I sat next to the door which I kept hitting with the side of my clenched fist, and repeating the same word, till my fellow-passengers must have thought—well, I don't know what they thought. I have since come to the conclusion, from what I have heard from others, although they have not expressed themselves quite in the same way, that this one word sums up the entire situation as seen by most.

I do not know whether others have taken the trouble to analyse their feelings in this matter, to try and find out why the death of this really Big man should affect them in this strange manner, but I have, and I have satisfied myself so far as I am personally concerned, and I even venture to think that it is so with others. Why is it that the death of Cody, dear old Big "Papa" Cody, whom everybody loved, does not affect us in the same sense that a death in our own family does? Cody was essentially one of our family—one of a family which embraced all connected with, and most outside, aviation. "Papa" Cody we called him, and he was our papa, pure and simple. Cody is dead; and yet we do not feel that loss which I have feebly attempted to describe above. We feel something has happened; happened suddenly, to prevent him carrying on his work, and that we shall not see him again, and yet we cannot seem to think of him as dead, and gone from us for ever. Why is it? It is because Cody is not dead—Cody could not die—Cody lives on—it is PERSONALITY, Cody was personal. Cody exuded personality from every pore of his skin. The waves of Cody's personality went forth from him like the ethic waves from a wireless installation, affecting everybody that was "in tune," and there were few, very few, that were not. Cody was a "Big" man. Everything about Cody was big. Cody could no more have built a small racing monoplane than he could have let petty worries trouble his big nature. A big man; he built a big machine. He wore big boots, a big hat; wore a big smile, and had a big heart, a heart so big that it must have found trouble to accommodate itself even in his big body; nobody but those in close touch with him knew how big Cody's heart really was. Why did we love him so? Perhaps we have never troubled to think. We had got so used to having him with us that it did not matter, but what was it? Have you ever thought? I will tell you—it was because Cody was straightforward. Cody only had one way of talking, whether it be to King or peasant. He may have modified his manner of speech to suit the occasion of the Royal presence, but he spoke straight and said what he had to say, and what was in his mind. When Cody spoke, we all knew that what he said was his candid opinion, and given without fear or favour. Cody would have been no good as a diplomat. I was talking to him on Salisbury Plain when he was told that the Government had awarded him £5,000 for his kites, which he told me had cost him more. But they had *forgotten* many of the little things that should have gone with the award, and which meant more than the money to Cody. And Cody said things—said them right out to the wind that was whistling across the plain, for it to carry to any ears that cared to hear. He would have said exactly the same had he been at Whitehall. Dr. Kenealy's umbrella would not be such a wonderful relic as it is had Cody been a member of Parliament. Cody would have banged the table with anything, and to some tune. Would to goodness that we had some of his stamp there.

It has been said of him that he was "theatrical," a "showman," and knew the value of publicity. We are all theatrical—we are all showmen—we all know the value of publicity, but we have not all Cody's straightforward pluck to come right out into the open and say so.

It has been said that Cody knew nothing of mathematics, and, therefore, could not build a proper machine. Well, he built one that came out first in competition, open to the world. He may not have known much about mathematics as taught at college, but he knew more about it than most people gave him credit for, as one soon found out if one tackled him on a problem, and withal he had, when building machines, taught himself a good lot of sound practical something—call it what you like. Cody could start in the middle and build outwards, without any very definite idea as to final dimensions or form, and his machine would fly, and fly well at the first asking, with anything from one to seven up. I have seen machines, the "blue prints" for which have equalled their total area, that have absolutely refused to leave the ground until they were altered and rebuilt.

Cody was just a great big lovable boy, with all a boy's exuberant spirit. One could not somehow imagine him a man of over fifty, an age when many men think only of peace and rest. He never seemed to want much rest at all. I have left him at nine o'clock at night up on the plain at Salisbury, at work on some part of his machine that did not quite suit him, and which looked like taking him all night to alter, and I have hardly seemed to have dropped off to sleep at my lodgings at Amesbury, when I have heard the roar of his engine overhead, and there was Cody three thousand feet up, and the time—daybreak.

It seems strange to me, when I think it over, that with his death dies almost everything "Cody," so far as aviation is concerned. Not one, I think of his machines is left to us. Cody is dead, and the Cody biplane goes with him. The monoplane, or rather the remains of it, is still, I believe, hanging up in the shed at Laffan's Plain: the monoplane that flew at ninety miles per hour the first time in the air, and frightened even its builder with its enormous speed. Except for the incident of the cow, I think we should have heard more of this machine and speed records.

In conclusion, I cannot do better than take a line from Kipling and say, "If death be the price of victory, Lord God, we ha' paid in full."

FROM THE BRITISH FLYING GROUNDS.

Brighton-Shoreham Aerodrome.

Tuesday, last week, Monsieur Henri Bregi, on a 130 h.p. Breguet machine, put up a fine exhibition in the evening, carrying one, two and three passengers, all with apparent ease. Geere, on 45 h.p. Green Avro, gave excellent display of what this 'bus can do, and Shaw, Lusteed and Elliott put in some school work. Wednesday, Geere was again out testing, and Elliott showed considerable improvement, doing some very neat curves. Mr. Gordon England had his Circuit waterplane out.

Thursday, Geere tested the air previous to instructing Lusteed, Elliott and Shaw, who all did a large amount of school work that day. It is interesting to record that Gaskell completed his first circuit in fine style, getting the machine up remarkably well. On Friday morning Geere was out for a short time, but found the wind too strong for tuition purposes.

Saturday saw all the Avro pupils out, as well as Mr. Cecil Pashley. On Tuesday, Monsieur Bregi took up two passengers, accomplishing several circuits at a good altitude. Bregi is an expert flyer and handles the Breguet in good style. During last week, however, he piloted the waterplane from Brighton to Littlehampton, where his lower plane was damaged after alighting on the water. This mishap, we understand, resulted from the carelessness of a boatman, who evidently placed more reliance on the lower plane than was necessary.

Brooklands Aerodrome.

MESSRS. MARTIN AND HANDASYDE have now got the 120 h.p. Austro-Daimler engine for their new hydro-aeroplane, and trials may be expected to take place at Brooklands during the coming week. The machine is on the lines of this firm's famous monoplane, and if the waterplane is anything like as successful as their monoplane, the authorities will not have far to look if they want an opportunity of testing the product of a firm noted for its attention to the slightest details and high-class workmanship. The services of one of Britain's premier airmen are likely to be available for the preliminary tests.

Several notable additions have been made to the ranks of the Brooklands pupils. Lord Edward Grosvenor has joined the Bristol School under Mr. Merriam, and is already shaping very well; whilst to Mr. Barnwell's pupils at the Vickers School has come a younger brother of Lieut. Joubert de la Ferte, and this pupil has the makings of a particularly fine pilot. He should be a worthy successor to his brother, and to the brilliant batch of pupils who have recently finished their courses of instruction.

On Saturday, fine exhibition flights were made by Messrs. Barnwell, Merriam, and Pizey, who took their respective machines up to well over 2,000 ft., from which they came down in graceful spirals. Monsieur Champel also made some fine flights on his Champel biplane with its 100 h.p. Anzani engine.

On Sunday, Mr. Barnwell was first out on the Blériot monoplane, on which he made a long trip at a great height, making a very pretty landing in front of the spectators. Monsieur Champel was next up, taking the winner of the ballot for the free flight, and also a number of other passengers, including Capt. Fox, to whom he gave a demonstration of the machine's capabilities, throttling it down and generally handling it with the greatest of ease, and at one time entirely removing both hands from the controls. Mr. Merriam gave some fine exhibition flights with spiral descents from over 2,000 ft.

The flying community at Brooklands has been profoundly moved by Mr. Cody's tragic end. Mr. Cody was a great favourite at Brooklands, and, in his early days, some of his best flights were made there.

Bristol School.—Merriam first out for test on Monday, last week, afterwards up behind Capt. Jackson, Lieuts. Lewis and Roche, and later with Capt. Evans, giving them all good long turns each. Lieuts. Darley and Mead a good solo each, the latter making his first figures of eight in good style. Merriam finished by taking Lieut. Lewis for a high flight, and later went alone practising for a race. Merriam testing for race, in which he came in second. Afterwards went to assistance of a machine on the Golf Links, taking Lieut. Roche as passenger. Too windy for further school work.

Merriam for test on Tuesday, and then Lieut. Darley for a solo, and Merriam then up behind Capt. Jackson. Capt. Evans and Lieut. Lewis out for straights and circuits. Wind stopped further flying. Merriam test, afterwards with Capts. Evans and Jackson and Lieut. Lewis, the latter afterwards alone for first time, doing three good straights. Mr. Richard Powell and Lieut. Mead out practising figures of eight and landings. Merriam gave a trial trip to Lieut. Playful (a new pupil). This instructor then finished up with a solo.

Merriam test on Wednesday, then up behind Capt. Jackson and Evans on several straights; both these pupils are getting on very well. Merriam testing another machine, and then handed same over to Lieut. Mead, who made splendid figures of eight, and good landings. Lieut. Lewis followed with two good straights. Merriam for a high flight to end the morning's work.

Merriam testing conditions, taking Mr. Halford (a new pupil) as passenger. Afterwards up behind Capts. Evans and Jackson, and later with Lieut. Playful. Merriam testing another machine, and then Lieuts. Lewis and Mead and Mr. Richard Powell flying solos, darkness prevented further flying.

On Thursday, Merriam out first, afterwards with Mr. Halford, and behind Capt. Evans and Jackson, and Lieut. Playful, who had control occasionally. After testing another machine, Merriam sent Lieut. Mead alone for a solo, this pupil landing well and flying excellently. Lieut. Lewis followed on circuits, and made his first right-hand turn in good style, landing well. Merriam up again with all pupils, giving them good long turns on straights and circuits, landing, &c. Lieuts. Lewis and Mead for another flight each, the latter practising landings for his ticket. Mr. Richard Powell made a solo, and then took machine to hangars. Merriam wound up a good morning's work by taking Mr. Halford up to 2,000 ft., with a spiral descent to hangars. Merriam solo, then up with Capt. Evans, Lieut. Playful and Mr. Halford, and Lord Edward Grosvenor (new pupil). Merriam solo to sheds, and Lieuts. Lewis and Mead a solo each.

Foggy all Friday morning. Merriam made a test flight, but too windy for school work. In the evening, Merriam for a test, then with Lord Edward Grosvenor, Lieut. Playful, and Mr. Halford. After testing another machine, Lieut. Darley was out doing figures of eight at 600 ft., making a spiral descent. Lieut. Lewis afterwards for figures of eight. Lieut. Mead also doing figures of eight at about 500 ft. in good style, and landing excellently. Merriam up behind Capt. Evans and Jackson on straights and circuits, afterwards solo to sheds, it being now quite dark.

Merriam testing two machines on Saturday, then away with Lord Edward Grosvenor, Capts. Evans and Jackson and Lieut. Playful. Afterwards Capt. Jackson alone for first time, flying good straights and circuits and landing very well. Other pupils flying alone were Lieuts. Darley, Mead, and Lewis, the latter pupil flying high and landing well. Merriam and Lieut. Mead made a good solo each to sheds. In the afternoon Merriam and Pizey giving exhibition flights in gusty weather. Later Merriam tried conditions, taking Mr. Halford as passenger, but found too bumpy for school work.

Vickers School.—Tuesday morning, last week, Paterson on biplane No. 20 solo, and then with Mr. Joubert de la Ferte. Mr. Webb solo straights. Paterson with Mr. Newton-Clare. Wind getting very bumpy. In evening, Paterson on biplanes Nos. 20 and 21 solo, and with Mr. Wynne-Roberts (new pupil). Knight on biplanes Nos. 20 and 21 with Mr. Joubert de la Ferte, and Mr. Addis (new pupil). Capt. Wood on biplane No. 21. Mr. Elsdon and Mr. Newton-Clare straights on No. 2 mono. Mr. Webb solo on biplane.

Next morning Knight, on biplane No. 20 with Mr. Joubert de la Ferte and Mr. Wynne-Roberts, Paterson with Mr. Addis. Knight test on No. 2 mono., Mr. Newton-Clare and Mr. Elsdon straights. In evening Knight on biplane with Messrs. Addis, Webb, Wynne-Roberts and Joubert de la Ferte.

Knight on biplane with Mr. Addis, Thursday morning. Mr. Webb good solo flights on biplane. Knight with Mr. Wynne-Roberts. Knight test on No. 2 mono., Mr. Newton-Clare and Mr. Elsdon straights. In evening, Knight on biplane No. 20 with Capt. Ellis (new pupil) and with Messrs. Joubert de la Ferte and Addis. Mr. Webb solo. Wind getting rather bumpy.

Friday. In the evening Paterson testing No. 20 biplane. Mr. Joubert de la Ferte, with Knight behind. Mr. Wynne-Roberts ditto. Paterson testing No. 3 monoplane, then Mr. Elsdon for straights on same. Mr. Webb solo on biplane, then Messrs. Joubert and Wynne-Roberts circuits on biplane with Knight behind.

In the forenoon, Saturday, Barnwell on Blériot, testing climbing rates at different angles. In the afternoon, Barnwell, on 70 h.p. biplane, with Mr. Elsdon, Capt. Charlton, Capt. Downer (both new pupils), and Mr. Joubert de la Ferte. Knight out with Mr. Wynne-Roberts.

Sunday. Barnwell on Blériot during afternoon.

Eastbourne Aerodrome.

ON Bank Holiday Sunday, Mr. Fill successfully accomplished his *brevet* tests in a decidedly unpleasant breeze. He is to be congratulated upon his performance, as the conditions were far from favourable, a puffy wind blowing the whole time.

On Tuesday of last week Fowler was out with Mr. Bevis on the school 'bus, after which he did some passenger carrying. Gassler was out practising on the Bristol, and Mr. Fill was taxying on the 35 Blériot.

On Wednesday, Fowler, with Gassler up behind, flew the Henry Farman waterplane to Bexhill, where he gave some exhibition flights and did some passenger carrying. Returning in the evening, Fowler was again on the school 'bus giving instruction.

On Thursday morning, Fowler had Lieut. Bone, R.N., and Mr. Bevis up on the E.A.C. biplane in turns. Lieut. Bone then went up with Gassler, and Mr. Fill was doing straights on the 35 h.p. Blériot. In the afternoon Fowler paid another visit to Bexhill, and was busy with passengers.

On Friday and Saturday there was too much wind for school work, but on both days Fowler gave exhibition and passenger flights along Eastbourne front.

Sunday was entirely blank owing to wind. Monday was hardly any better and only two flights were possible, one by Fowler and one by Gassler, both on the E.A.C. biplane.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—On Bank Holiday, Capt. Webb (new pupil) rolling with Mr. Birchenough. Next day Capt. Webb and Mr. Blake (new pupil) rolling with Mr. L. Noel and Mr. Birchenough.

Thursday, Capt. Webb and Mr. Blake olling, afterwards both pupils doing straights with Instructor Manton behind.

Friday, Mr. North circuits under supervision of Mr. Birchenough, Capt. Webb and Mr. Blake straights.

School out very early Saturday. Mr. Blake and Capt. Webb straights, Mr. Russell circuits, under supervision of Instructor Manton.

Blériot School.—Monday, last week, Mr. Gower on L.B. 4, a circuit, and after practising a few figure eights, took his ticket in good style, landing on the mark each time. Mr. Williams on the "Pinguin" 3 good straights. Next day, Capt. Cox and Messrs. Williams and Leche straights on Pinguin roller. Mr. Reilly, after circuit and figure eights, passed his *brevet* tests in good style.

Wednesday morning, Messrs. Cox, Williams and Leche, were making straights on the Pinguin, also in the evening.

Capt. Cox and Mr. Williams, Thursday, straight flights on No. 1. Mr. Leche for the third time on the Pinguin, making very good progress. In the evening, Capt. Cox on No. 1, straight flights, and Mr. Leche on Pinguin.

Friday, Mr. Leche making good progress on the Pinguin, in the afternoon Messrs. Cox and Williams good straight flights on L.B. 2.

Messrs. Cox and Williams steady straights Saturday, on L.B. 2. Mr. Leche continuing on Pinguin. He will soon be ready for L.B. 1.

British Deperdussin School.—Monday, last week, Lieut. Cogan 18 minutes straights on No. 5, landings improved. Lieut. Porte racing in afternoon. Put up some of the finest flying ever seen at the aerodrome, his time round the pylons being done in record time.

Mr. Brock left Brooklands at 10.4 a.m. for Liphook, where he arrived at 10.20 a.m., a distance of about 26 miles, on the 75 h.p. Mr. Spratt entered for speed and cross-country contests on the 60 h.p., also exhibition flights on the same 'bus. After racing he took up passengers on the 100 h.p. machine.

Mr. Spratt, two solo flights Tuesday, on the 60 h.p., at 2,000 and 3,000 ft., spiral descents.

Col. Smyth, Thursday, 22 mins. on No. 5, up to 200 ft., making good landings, and handling machine well. Lieut. Cogan on same machine for 40 mins., circuits and figures of eight at a height of 250 ft., making good landings. Mr. Spratt, exhibition flights on the 60 h.p.

Friday, Lieut. Porte testing the Show "Seagull," which has been converted into a land 'bus. Mr. Spratt also testing "Seagull." Machine climbs well, and has a beautiful gliding angle.

Col. Smyth, V.C., 26 mins. on No. 5, Saturday. Handles machine well and makes good landings. In the afternoon Mr. Brock entered for speed handicap on 35 h.p., and came second in his heat, but had to abandon the final owing to engine trouble. Lieut. Porte entered for speed contest on his 100 h.p. machine, winning his heat and coming second in final. Mr. Spratt won his heat on the 60 h.p., and came third in the final. He gave many exhibition flights on same machine.

Sunday, Mr. Spratt exhibitions and passenger flights on 60 h.p. and 100 h.p. machines.

W. H. Ewen School.—On Monday, last week, school out 5 a.m., under instruction of M. Baumann and Mr. F. W. Goodden. After test-flight on 35 h.p. Caudron No. 2, by M. Baumann, he handed machine to Mr. L. A. Strange, who was doing figures of eight in good style, landing near the mark. On 35 h.p. Caudron No. 2, Messrs. de Havilland and Jagenberg doing half circuits in good style, and Capt. Jenings straight flights, while Messrs. Holbrow and Watts were rolling on same machine. Mr. F. W. Goodden was on No. 2, rising to an altitude of 2,000 ft. Later, M. Baumann flew to Harrow and to Willesden Green on 45 h.p. Caudron, rising to 2,000 ft.

School out at 5.30 p.m. Tuesday, when M. Baumann, after test-flight on 35 h.p. Caudron, handed machine to Mr. Jagenberg and Capt. Jenings, who were doing straights and half-circuits, Mr. Holbrow rolling and hopping and Mr. Watts rolling. During the afternoon, Mr. F. W. Goodden made some good figures of eight. Mr. L. A. Strange then went through his *brevet* tests, flying steadily, rising to 300 ft. and landing on the mark.

5 a.m. on Wednesday, school out under the instruction of M. Baumann. After test-flight on Caudron No. 1 machine, he handed to Mr. L. H. Jagenberg, who was making nice straight flights. Mr. F. W. Goodden made a flight on same machine. Capt. Jenings made small turns on No. 2, while Messrs. Watts and Holbrow were rolling and hopping. School again out at 7 p.m., when

Mr. L. H. Jagenberg, who has just passed his *brevet* tests on a 35 h.p. Caudron biplane at the W. H. Ewen School, Hendon.

Mr. L. A. Strange, one of the latest pupils to take his Aero Club certificate on a 35 h.p. Caudron at the W. H. Ewen School, Hendon.

Mr. M. Leverrier, who took his certificate at Temple's Aviation School, Hendon, recently.

M. Baumann and Mr. Warren made flights on No. 2. On No. 1, Capt. Jenings and Mr. Holbrow were doing straight flights.

The pupils were out at 5 a.m. Thursday, under instruction of M. Baumann and Mr. F. W. Goodden. After test-flight on No. 1, by M. Baumann, Messrs. de Havilland and Jagenberg were doing half-circuits and circuits. Mr. F. W. Goodden made a flight on same machine. On No. 2, Capt. Jenings straight flights and small turns, and Mr. Watts rolling and hopping. M. Baumann also put up an excellent flight on the 35, reaching an altitude of 3,000 ft., flying to Harrow and back. Mr. Turner also made a splendid flight, going in pursuit of two balloons round which he circled several times. Mr. Ewen also made a flight with a passenger on the 45 Caudron.

On Friday M. Baumann went for an excellent flight on the 45 Caudron, reaching an altitude of 6,000 ft., finishing with a beautifully judged spiral. F. W. Goodden also made an excellent exhibition flight on the 35 Caudron. School practice commenced at 6.30 p.m. Under instruction of M. Baumann, Capt. Jenings doing good straight flights and half-circuits, Mr. Watts rolling and hopping. Under the instruction of Mr. Turner, Messrs. Jagenberg and de Havilland flying good circuits and figures on the 35 Caudron, while Messrs. Russell and Warren were doing good exhibition work on the same machine.

School out Saturday at 5 a.m. Under instruction of M. Baumann, Capt. Jenings straight flights and half-circuits, and Mr. Watts rolling. Under instruction of Mr. Turner, after short flight, Mr. Jagenberg started on his *brevet* tests, which he passed in the most successful manner, flying steadily at an altitude of 300 ft., and on each occasion landing close on the mark. Mr. de Havilland and Mr. Russell were also doing good flying on the same machine.

Temple School.—George L. Temple made two flights in a bumpy wind on Tuesday afternoon last week. In the evening he took his Caudron to a height of 500 ft., and flew over Golder's Green and Hendon, remaining up for 30 mins. M. Leverrier then flew good circuits, and G. L. Temple rising to 900 ft. flew across country for 30 mins., finishing his flight with a splendid spiral. Next morning, at 5 a.m., G. L. Temple was testing for 10 mins., and handed machine over to M. Lance, A. Vaile, and R. Penny, for 10 mins. each. On Thursday, R. Penny made a good figure eight, A. Vaile took practice in turns, and Maxime Leverrier then flew for his certificate. Flying at an average height of 180 ft., he completed the whole of his tests in splendid style. George L. Temple gave several exhibition flights in the afternoon in his usual good style. On Saturday, G. L. Temple testing for 10 mins., and handed over to R. Penny for his certificate tests. This pupil, flying steadily throughout, also completed the whole of his tests, landing well.

Salisbury Plain.

Bristol School.—School closed for holidays on Monday last week, and weather not fit for flying on Tuesday morning. In the evening Pixton on biplane giving tuition to Capt. Hay—a long flight, and calling at Larkhill Camp. Lieut. Bateman one flight, Mr. Courtney two flights, Lord Wellesley one flight, Capt. Murphy two flights, and Capt. Buckland one flight. Jullerot gave biplane tuition to Lord Wellesley and Capt. Bateman. Capt. Buckland a good solo on biplane. Jullerot testing tandem monoplane, and then a trip on same machine to a prospective pupil. Jullerot tuition to Capt. Murphy on biplane. Solos on the tandem were made by Capt. Popovici with a passenger, and Lieuts. Beroinade and Pascanu. On the tractor biplane Capt. Popovici did two good solos with passengers, and Lieuts. Beroinade and Pascanu each did two good solos. Mr. Garnett and Mr. Delaplane made good solos on tandem monoplane.

On Wednesday, Jullerot out testing biplane and tandem monoplane, and afterwards giving biplane tuition to Lord Wellesley, Capt. Murphy, and Lieut. Bateman twice. Pixton also gave tuition to Lord Wellesley, Capt. Murphy, Mr. Courtney, and Lieut. Bateman twice. On the tandem monoplane Capt. Popovici was practising *vol planés*, and Lieuts. Beroinade and Pascanu did a solo each. On the tractor biplane, Capt. Popovici did two good solos with passengers, and Lieuts. Beroinade and Pascanu each did two good solos. Solos were also executed by Garnett on a monoplane, and Capt. Buckland on a biplane.

Jullerot testing biplane and tandem monoplane. On a biplane Capt. Murphy, Lieut. Bateman, Capt. Buckland, Mr. Courtney, and Lord Wellesley each did a good solo, and Surgeon Hitch did two. Capt. Buckland with Pixton for test on tractor biplane. Lieut. Pascanu did a solo on the biplane, tandem monoplane and tractor biplane. Capt. Popovici a solo on the tractor biplane and afterwards four trips with passengers on the same machine. Lieut. Beroinade did two solos on the tandem monoplane and afterwards a solo on the tractor, but was forced to land at the artillery ranges through engine trouble; he made a perfect landing. Jullerot on the tandem for four trips with mechanics to his aid. Mr. Delaplane one solo on tandem monoplane.

Jullerot testing a biplane and tandem monoplane on Thursday. On a biplane excellent solos were made by Capt. Murphy, Lieut. Bateman, Mr. Courtney, Lord Wellesley, one each, and Surgeon Hitch, and Capt. Buckland two each. Lieut. Beroinade two good solos on a tandem monoplane, Capt. Popovici on the tractor biplane solo to 3,760 ft., afterwards he went for a solo on tandem monoplane. Mr. Delaplane two solos on a tandem monoplane.

Jullerot test biplane and tandem monoplane, later giving two flights to two soldiers, the result of a ballot between about 50 soldiers. Capt. Popovici did four excellent solos on the tractor and one on the tandem monoplane. Lieut. Beroinade did two solos on the tandem monoplane, and a small flight on the tractor. Lieut. Pascanu did two solos on the tractor biplane. On the biplane Surgeon Hitch and Capt. Buckland did one solo each. Lord Wellesley, Capt. Murphy, Mr. Courtney did two solos each. Lieut. Bateman also did two solos on the biplane. Mr. Delaplane did two solos on the tandem monoplane. Pixton, a long tuition flight to Capt. Hay.

Jullerot testing biplane and tandem monoplane on Friday, then a flight to Lieut. Jenkins. Surgeon Hitch and Capt. Buckland each did one solo on the biplane, and Mr. Delaplane did three solos on the tandem monoplane. Solos on the biplane by Capt. Murphy, Capt. Buckland, Surgeon Hitch, Mr. Courtney, and Lieut. Bateman.

Pixton on biplane one flight to a friend of Capt. Dickson, a prospective pupil. Later two flights to Lieut. Jenkins and afterwards to a soldier who gave assistance with tractor on Knighton Down. On the tractor Capt. Popovici did a solo and Lieuts. Beroinade and Pascanu each a solo on the tandem monoplane. Mr. Delaplane also a solo on the tandem monoplane. On the biplane, Lord Wellesley, Surgeon Hitch, Capt. Murphy, Capt. Buckland, Lieut. Bateman, and Mr. Courtney, each did a good solo. Lieut. Jenkins received instruction under Jullerot.

Jullerot testing on biplane and tandem monoplane on Saturday, and then twice with Lieut. Jenkins on biplane. On the tandem mono., Lieuts. Beroinade and Pascanu each did a solo, and these same officers each did three solos afterwards on the tractor biplane. On the school biplane, Surgeon Hitch, Mr. Courtney, Capt. Murphy, and Capt. Buckland each did two solos.

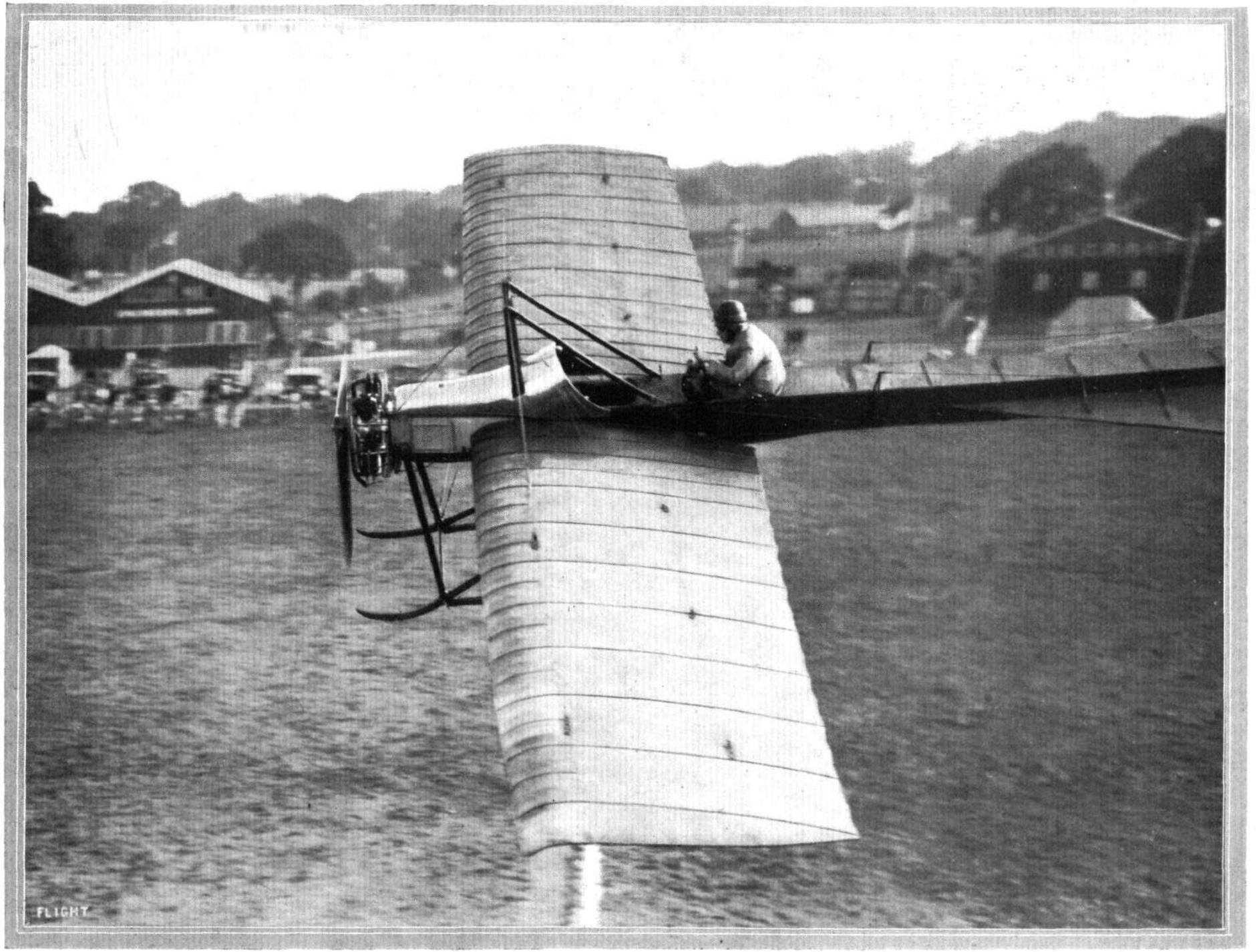
Royal Flying Corps. 3rd and 4th Squadrons (Netheravon).—On Tuesday week Lieut. Cholmondeley on Henry Farman 274, making a good solo flight of over 5½ hours' duration, the machine being handled in splendid style during the long trip. Later he made another flight on same machine, taking up Lieut. Goole for 15 mins., after which Capt. Herbert took up the same passenger. Major Brooke-Popham was up for 25 mins. In the evening Lieut. Cholmondeley took up two reverend passengers, Army Chaplain Bolwood and the Rev. Tupym, and followed this up with four other passengers, Lieut. Whitworth, Sergt. Wise, of King Edward's Horse, Trumpeter Steyn of the same regiment, and Lieut. Le Britton. Lieut. Conran on Avro went to Newbury and back, taking 1 hour for the double journey. Capt. Fox on 70 h.p. Blériot made short flights round the aerodrome.

The next day Lieut. Conran was out early making some good flights, including splendid spirals round the aerodrome for 1 hour. Lieut. Cholmondeley on Henry Farman for a run round the aerodrome, after which he took up Lieut. Porter of the R.F.C. on reconnaissance work, and again with passengers, Capt. Paley, of the Rifle Brigade, Sergt. Fortescue and Sergt. J. Skinner, of the O.T.C., Lieut. McFarlan Grieves, of the O.T.C., and Lieut. Hitchery, of the O.T.C. In the evening Lieut. Cholmondeley took Lieut. Abercromby up for reconnaissance work, and then with Capt. Howard for a short flight.

On Thursday, Lieut. Conran out early in the morning, putting in good flying on Avro for 2 hrs. 15 mins., flying round the aerodrome, landing in spirals. Capt. Fox on Blériot, also doing good flying. Capt. Fox also out on Blériot on Friday for 30 mins., after which Lieut. Conran took over the machine, making two good flights. Capt. Fox on Blériot for a short time, after which he went over to the Central Flying School and then made another short flight round the aerodrome. Lieut. Conran took over the machine afterwards. Capt. Herbert out on Henry Farman, and subsequently took Lieut. Porter for reconnaissance work.

Pashley Brothers.

OWING to the very unfortunate accident with which Mr. Eric Pashley met the other day, Mr. Cecil Pashley has taken to flying the H. Farman 'bus at Shoreham. He is quite as clever as his brother, and deserves praise for his neat piloting. On Wednesday of last week, he flew with Mr. A. Geere to Brighton and back, and on Tuesday a flight to Littlehampton was made, where a two-day exhibition was given. Mr. Eric Pashley is progressing as favourably as can be expected.



MR. N. SPRATT FLYING THE 60 H.P. DEP. IN THE SPEED HANDICAP AT HENDON ON SATURDAY.—This very unique photograph was taken from No. 1 pylon on the race course.

FLYING AT HENDON.

HENDON visitors saw a newcomer carry off the first prize for the speed handicap last Saturday on the occasion of the first August meeting. This was an Avro biplane fitted with an ancient 50 h.p. Gnome engine, and piloted by P. Raynham. This splendid 'bus was deservedly much admired by the spectators, and no one could grudge it the success resulting in its first appearance in the Hendon races. Raynham had flown over from Rugby in the morning, and previous to the racing put up some fine exhibition flying. Other exhibitions and passenger flights were also made by the Hendon pilots, and by the time the speed handicap was about to commence there were over a dozen machines on the ground, so that the aerodrome bore an appearance that looked like work.

The first heat of the speed handicap started at about 4.30 p.m., and was flown over four laps only, as there was just sufficient wind to render flying round the course rather tricky. Lieut. Porte on the 110 h.p. Anzani-Deperdussin started from scratch, and came in first, having steadily overhauled his rivals, who were: Louis Noel on the G.-W.-Maurice Farman (2 mins. 7 secs.), W. L. Brock on the 35 h.p. Deperdussin (2 mins.), and Pierre Verrier on the Aircraft-Maurice Farman (1 min. 26 secs.). The last named got into backwash trouble on the last lap, and retired, and Brock overtook Noel at the finish, coming in second, 7 secs. behind Porte and 3 secs. ahead of Noel. Five lined up for the second heat, as follows: W. Birchenough (2 mins. 51 secs.) and R. Carr (2 mins. 41 secs.), both on G.-W. biplanes, Lewis Turner on the 45 h.p. Caudron (1 min. 11 secs.), N. Spratt on the 60 h.p. Deperdussin (5 secs.) and P. Raynham on the 50 h.p. Avro (scratch). The two G.-W. 'buses plodded along close together very much like heavenly twins, with the other machines rapidly overhauling them. Spratt came in an easy first, and Raynham, although flying rather wide, banked well on the pylons and just managed to come in second, beating Birchenough by 1 sec. The other twin came in third, 8 secs. behind, and Turner fourth. The final heat of six laps, with four starters, was practically a Deperdussin race, three of these machines participating. These were Lieut. Porte on the 110 h.p. Dep. (scratch), W. L. Brock on the 35 h.p. (3 mins. 17 secs.), and N. Spratt on the 60 h.p. (1 min. 42 secs.). The remaining competitor was P. Raynham on the Avro (1 min. 56 secs.). This time Raynham flew much lower and closer, thereby obtaining first place. Brock added some excitement to the race by having an argument with No 2 pylon. He was making good progress when his engine started missing at No. 1 pylon, so he turned off the course as if to land, but apparently his engine picked up, for he made a sharp turn round No. 1 pylon and resumed the course. He got as far as No. 2 pylon, when the engine again failed, and before he could steer clear, the right wing-tip struck the pylon, swinging the little monoplane over on to the left wing-tip. Fortunately the chassis was on the ground when it struck, so only the machine suffered; Brock stuck to his seat all the time. Porte and Spratt, therefore, were left to finish off the race between them, and a good flight they put up in doing so; the former obtained second place from Spratt by 2 secs. The times for the final heat were as follows:—

Speed Handicap.
Final Heat (6 laps).

		Start.	Handicap Time.
		m. s.	m. s.
1.	P. Raynham (50 h.p. Avro)	1 56	10 45
2.	Lieut. Porte (110 h.p. Deperdussin) ...	scratch	11 4
3.	N. Spratt (60 h.p. Deperdussin)	1 42	11 6

The next event was the Cross-country Handicap, the course being to Bittacy Hill and back four times. By the time this event started the wind had dropped considerably, which somewhat upset the handicapping. It was an all-biplane contest, the starters being R. Carr (8 mins. 54 secs.) and Marcus D. Manton (8 mins. 24 secs.) on G.-W. biplanes, Louis Noel on the G.-W. Maurice Farman (4 mins. 9 secs.), Pierre Verrier on the Aircraft-Maurice Farman (26 secs.), and P. Raynham on the Avro (scratch). All the machines were somewhat scattered, and it was not until the end that they drew closer together. Manton, who flew rather high, seemed to lose rather than gain on Carr. On the other hand Noel flew the course very well and passed Carr on the third circuit, thus coming in first. These were the only two who really finished, both Manton and Verrier flying off at the end of the last circuit. Raynham also retired at the finish. Verrier did not come down immediately, but continued flying high (as did Manton), eventually reaching a height of about 4,000 ft. After the cross-country event some further exhibition flights were made, and several passengers taken up. In addition to Raynham on the Avro, Carr, Manton, Noel, and R. T. Gates were out on the various G.-W. machines, including a new 50 h.p. school 'bus which has just been built at the works. This machine—a fine piece of work—is similar in many respects to the other 50 h.p. 'buses, differing in having two rudders under the tail, and being over 100 lbs. lighter. The spars and most of the struts are hollow. During its test flights it took up two passengers besides the pilot, and climbed well. M. Debussy also made a fine flight on a new 110 h.p. British Breguet.

Cross-Country Handicap. 14 miles.

		Start.	Handicap Time.
		m. s.	m. s.
1.	Louis Noel (70 h.p. Maurice Farman) ...	4 9	24 32
2.	R. H. Carr (50 h.p. Grahame-White biplane)	8 54	24 52

Sunday was fine but windy, and a goodly crowd witnessed a lot of flying, which continued up to 8 o'clock in the evening. R. H. Carr opened the proceedings on the 50 h.p. G.-W. 'bus (type 1). W. Birchenough was out on the sister machine, whilst Marcus D. Manton put the new 'bus through its paces, and demonstrated that it had several good points. It climbs exceptionally well, and is very steady. When fitted with extensions to the upper planes it is anticipated that they will have a really serviceable machine. N. Spratt gave some fine exhibitions on the 60 h.p. Deperdussin, including well-executed banked spirals. Unfortunately his engine was not behaving at all well, and finally let him down on rough ground, causing some damage to the landing chassis. However, he brought out the 110 h.p. Dep., and gave further demonstrations on that. Pierre Verrier was making his usual fine exhibitions on the Maurice Farman and taking up passengers, Lewis Turner also doing his share of the afternoon's entertainment on the 45 h.p. Caudron. E. Marty, who had been out on the fast little Morane-Saulnier monoplane during the afternoon, took over the 45 h.p. Caudron later on, and made a very fine high flight in the neighbourhood of 7,400 ft. Further impressive exhibitions were given by P. Raynham on the 50 h.p. Avro, Louis Noel on the G.-W. Maurice Farman, and E. Baumann on the Caudron biplane. Mention must be made of the fine banked spirals made by Noel on his machine. On the whole it was a real good day's flying.

THE BURTON-ON-TRENT MEETING.

GREAT success rewarded the Burton-on-Trent Town Attractions Committee, who organised a four days' meeting for the first days of August. The flying ground, lent by Messrs. Bass, Ratcliffe and Gretton, which is 750 yards long by 300 wide, forms part of an island made by two arms of the River Trent. Those taking part in the meeting were: Mr. E. Ronald Whitehouse, on a Handley Page monoplane, with 50 h.p. Gnome engine; Mr. Sydney Pickles, Blériot monoplane, with 60 h.p. Anzani engine; Mr. Raynham, Avro biplane, with 50 h.p. Gnome engine.

The flying commenced on the Friday, the proceedings being opened by the deputy Mayor of Burton, who welcomed the aviators. The weather was very gusty, and it was not until 5 o'clock that Mr. Pickles made his first ascent, followed shortly afterwards by Mr. Raynham on the Avro. Both gave a series of exhibition flights, Mr. Raynham taking two passengers.

Flying on the Saturday commenced at 2.30, but Mr. Pickles had trouble with engine lubrication. On the oil-pump being taken to pieces, the defect was soon remedied, and all three machines then gave exhibitions.

On Monday the meeting opened with the Model Aeroplane competition, organised by the Kite and Model Aeroplane Association, for several prizes given by the Town Committee, the first prize being won by Mr. A. F. Houlberg. Whilst the competition was proceeding, Mr. Pickles made a splendid flight, banking and giving a fine exhibition of spiral *vol planés*. In the afternoon the competitions proper commenced with the altitude event for a prize of £25, which Mr. Pickles won with a height of 6,100 ft., Mr. Raynham being second, 4,700 ft. After this there was a series of exhibition flights until a quarter to five, when the quick-starting competition (prize £5) was held. In the first round Mr. Pickles took a little over 7 secs. to leave the ground, whereas Mr. Whitehouse only took 6⅘ secs., but Mr. Raynham beat both of them by getting off the ground in 6⅛ secs. A second round yielded exactly the same results.

Mr. Raynham took up five passengers, and at six o'clock a cross-country race to Repton for a prize of £25 took place, Mr. Raynham winning this by 75 yards. Meanwhile Mr. Whitehouse gave a series of exhibition flights, banking and switchbacking at a low altitude, keeping the crowd interested while the other two machines were

AT THE BURTON FLYING MEETING.—On the left Whitehouse flying the Handley Page monoplane. Above, on the right, Sydney Pickles, in his Blériot; and below, aviators and others resting. From left to right: Messrs. Cates (Shell), Lane, F. P. Raynham, Meredith, E. Whitehouse, Sydney Pickles, Mrs. Whitehouse, Mr. Murray, Mrs. Goring. Standing behind is Mr. Handley Page.

away in the race. During the afternoon there were over ten thousand people present, the sixpenny enclosure being packed.

The Round the Island Handicap race of six laps, for a cup offered by the Marquis of Anglesey, was held on Tuesday afternoon, with the result that Mr. Whitehouse won in 9 mins. 50 secs., Mr. Raynham being second (10 mins. 3 secs.), Mr. Pickles third (10 mins. 6 secs.). The Bomb Dropping Competition was also held. During the day Mr. Pickles took up 10 passengers and Mr. Raynham 16. Passenger-carrying went on until it was quite dark.

Messrs. Bass and Co., were most hospitable to everybody connected with the meeting, providing tent accommodation and refreshments for all the aviators and their staff.

At the conclusion of the meeting, votes of thanks to Messrs. Bass and Co. for their hospitality, to the organising committee—of which Councillor Tarver was the chairman and Mr. Waude Thompson, the deputy borough engineer, was the secretary—together with a word of praise for the services of the Press, concluded the proceedings.

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AIRSHIP NEWS.

Movements of Zeppelin Airships.

ON Saturday evening the "Z 4" started from Gotha at 9 p.m., and passed over Berlin shortly after midnight, the progress of the vessel, which had her car illuminated, being closely watched by crowds of people in the streets. The airship eventually landed the following morning at 7.30 a.m. at Kœnigsburg. On Sunday morning the "Z 5" cruised from Frankfort to Gotha in 3¼ hours, while the "ZI 2" took 3½ hours to go from Leipzig to Frankfort.

A New Gross Airship.

THE latest dirigible designed by Lieut.-Col. Gross, in conjunction with Engineer Basenach, has just made her appearance outside the hangar at Reinickendorf. She differs considerably from her predecessors, notably in having the two cars enclosed by a continuation of the fabric of the envelope. The length of the envelope is 321 ft., and the greatest diameter 44 ft., the capacity being about 12,000 cubic yards. During the first trial, which lasted three-quarters of an hour on Monday, the airship behaved splendidly.

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First Flights in Galicia.

POUMET, with his Borel-Gnome, has been giving Galicians their first sight of a real aeroplane. On the 3rd inst., he started at 5 p.m. from La Corogna, and in 55 mins. flew the 110 kiloms. over the mountains to Santiago-de-Compostelle.

New Ground for U.S. Army.

FOR a period of three months the U.S. Government has leased a 100-acre tract of land at Fairfield, not far from the flying ground of the Wright Co., at Dayton, Ohio. During this month tests are to be conducted there with high-powered biplanes built by the Curtiss, Wright and Burgess Cos.

A New Russian Dirigible.

IT is announced from St. Petersburg that an order has been placed with the Ijorsky works for a dirigible designed by General A. Kovanko, director of the military aeronautic school. The dirigible will have an envelope of 20,000 cubic metres capacity.

Long Trip by "Sachsen."

LEAVING Hamburg at 5.20 a.m. on Tuesday of last week, the Zeppelin "Sachsen" cruised to Isle of Sylt, which was reached at 9.45. A start on the return journey was made at 10 o'clock, and five hours later the airship was back at Hamburg.

"Z 2" and "Z 5" Meet in the Air at Night.

AN interesting experiment was tried with two Zeppelin cruisers last week. The "Z 5" was ordered to cruise from Baden-Baden to Frankfort, and in the course of the journey the commander received a wireless telegraph message to change his direction and cruise to Mayence, keeping a look out for the "Z 2." The latter craft left Cologne at 11.30 p.m., and following the Rhine Valley, reached Mayence at 2 a.m. Afterwards the two airships cruised in company for about an hour before returning to their hangar.

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Long Flight by U. S. Officers.

ON July 23rd Lieut. B. L. Smith and Ensign G. de C. Chevalier, in a Curtiss flying boat, made a non-stop flight from Annapolis, Md., to Old Point Comfort, Va., the 145-mile trip taking 2½ hrs.

THE THEORY OF THE DUNNE AEROPLANE.*

THIS small addition to the evening's programme has been made possible by the courtesy of Mr. Mervyn O'Gorman, who has cut out a portion of his lecture in order to make room for me. You, as scientific people, will realise that this is just about as generous a thing as a man can do, and I can assure Mr. O'Gorman that I am proportionately grateful.

The title of Mr. O'Gorman's lecture has suggested to me that perhaps after all the simplest and most readily comprehensible way of describing this machine is to present it in its aspect of a combination of a number of stability devices. This lecture will, therefore, be more qualitative than quantitative.

The first person to try the effect of negative wing tips was

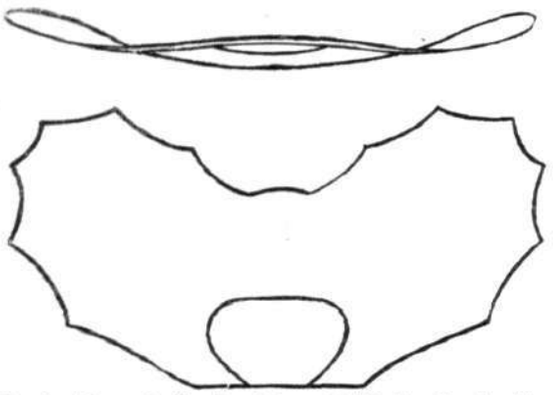


Fig. 1.—Zanonia Leaf. (From *Kritik der Drachenflieger*).

Professor Marey—he tried it on a double sheet of note-paper, weighted as a glider.

The first person to propose the use of backward-sloping wings was Mouillard. In advocating this plan-form he does not appear to have had stability in his mind at all, nor did he propose a permanent slope-back. His object seems to have been simply to provide a means for varying the speed. His apparatus was a man-carrying, motorless affair; the wings, pivotted at the shoulder, being kept pointing forward at slow speeds, and sloped-back at high speeds.

More modern machines which combine the sloped-back wings with the negatively disposed tip differentiate themselves naturally into two distinct classes. In one of these is contained all machines of

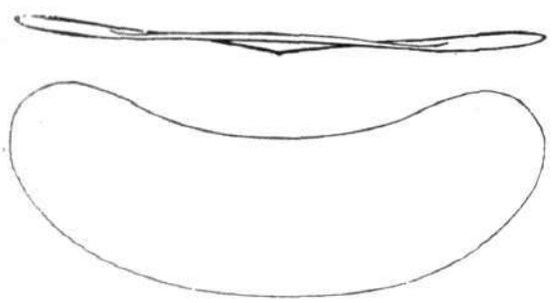


Fig. 2.—Etrich. (From 1905 Patent).

that type which in Austria and Germany is styled "Zanoniaform," the other comprises those types with which I prefer to experiment.

So far as I know, the Zanonia leaf represents Nature's solitary attempt in the Botanical Kingdom at the production of a gliding aerofoil.

Fig. 1 shows a front elevation and plan view of this extraordinary leaf. You will see that the heavy seed-pod is placed right in front of what constitutes the leading edge of this little aeroplane, so as to bring the centre of gravity into the proper position. The wings curve back on either side. As the leaf withers and dries, the tips, which are the rearmost part of the wings, curl up behind so as to present a very marked negative angle of incidence.

Ahlborn of Berlin was the first to draw attention to the gliding qualities of the Zanonia leaf. Various persons have attempted to embody its characteristics in full-size aero-surfaces, Blériot among the number. Herr Etrich has, however, given the greatest amount of time and attention to the study of this division of the retreating-wing machine. Fig. 2 shows a plan and front elevation of the early Etrich glider, taken from the 1905 patent. You will see that he has followed the leaf pretty closely. The cross-sections shown in the patent drawing are nearly identical with those embodied in the Weiss machine; but the Weiss form was more elongated fore and aft, and was, I understand, evolved independently.

Later Etrich added a tail (Fig. 3), and modified his main wings considerably.

Etrich has had many followers, particularly in Germany, and doubtless the names of many machines built on these lines will

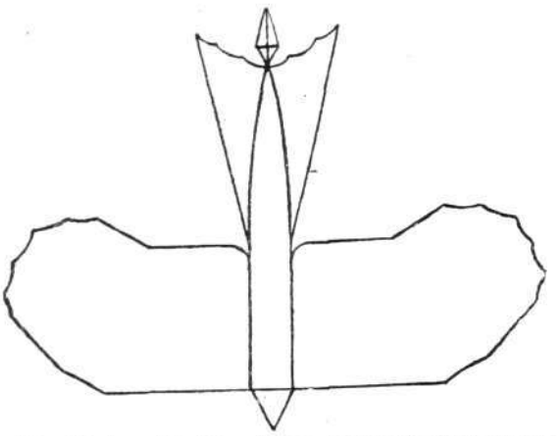
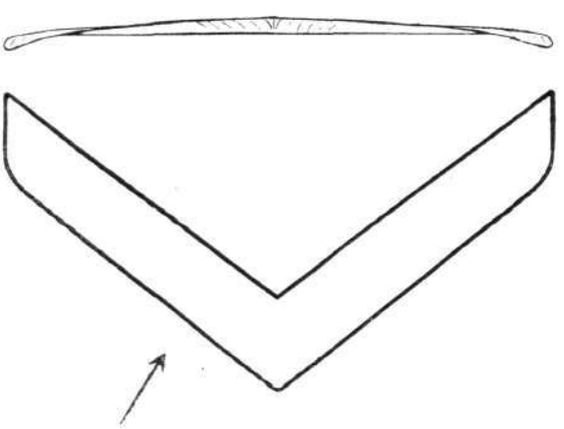


Fig. 3.—Modern Etrich. (From *Kritik der Drachenflieger*).

occur to you, but it is with the general characteristics of sloped-back wings that we have to deal, and this division is best described, as in Germany, as the Zanonia division.

Violently opposed to the Zanonia type in most characteristics are the wing forms in the other division of the retreating-wing, negative-tip group: the division to which I have given most of my attention since 1904.†

It is, perhaps, hardly worth while devoting any of the limited time at our disposal to an elaborate description of the shape and contour of these wings. As you know, I give the wings a much more definite arrow form (*see* Fig. 4) than that of the Zanonia type; the tips are rolled down in front instead of rolled up behind, so that we have a concave under surface instead of a concave upper surface in this region; while the outstanding feature of the type is the fact that the whole wing forms the roof-part of a tunnel running backwards and outwards across the wing, the crown of the tunnel being sloped back at a greater angle than are the wings themselves, and the sides of the tunnel preferably converging towards the rear end. The improvement in efficiency gained by this method of construction is quite extraordinary; but as I wish to confine myself to-night to the safety devices embodied in the wings, I must for the present ask you to take my word for it that this converging tunnel tends to produce a positive pressure under the negative wing-tip, so that for the same amount of negative *pressure* on the tip we are able to use a greater negative *angle* than in the Zanonia type. And it is the geometrical difference between the angle at the tip and the angle at



Figs. 4*a* and 4*b*.

the front of the machine which counts for most, though not for all, in natural stability.

* A Communication to the Aeronautical Society of Great Britain, by J. W. Dunne, A.F.Ae.S. (Read at Meeting on January 29th, 1913.)

† My attention having been accidentally directed to fluid flow in diverging, converging, and vena-contracta pipes, it occurred to me that wings built in such forms would give pressure distributions quite different from the ordinary, and also quite different travels of the centre of pressure, and were therefore worthy of investigation. But the stability actually obtained with the first model came as an astounding surprise.

(*To be continued.*)

BRITISH NOTES OF THE WEEK.

THE ROYAL FLYING CORPS.

The following appointments were announced in the *London Gazette* of the 12th inst. :—

R.F.C.—Central Flying School.—Capt. Tom I. Webb-Bowen, the Bedfordshire Regiment, from a Flight Commander, Military Wing, to be an Instructor, vice Lieut.-Col. H. R. Cook, Royal Artillery. Dated June 24th, 1913.

R.F.C.—Military Wing.—*Special Reserve of Officers.*—Francis Percy Adams to be Second Lieut. (on probation). Dated August 13th, 1913.

The following appointments were announced by the Admiralty on the 12th inst. :—

R.F.C.—Naval Wing. — Staff - Surgeons J. O'Hea, to the "Hermes," additional, for Isle of Grain Flying Station, A. G. Eastment, to the "Hermes," additional, for Calshot Flying Station, to date August 11th.

ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE summary of work for week ending August 8th :—

No. 1 Squadron. South Farnborough.—The "Beta" (1) was out most days carrying out instructional flights. The Kiting Detachment were at work daily, and several free balloon instructional runs were made.

No. 2 Squadron. Montrose.—A number of training flights took place on July 31st and August 1st and 2nd.

No. 3 Squadron. Netheravon.—A considerable amount of reconnaissance work was carried out during the week.

No. 4 Squadron. Netheravon.—Flying took place on the 1st, 4th, 5th, 6th, and 7th on B.E.'s and M. Farmans.

No. 5 Squadron. South Farnborough.—Several reconnaissances on Maurice Farmans were carried out during the week. This Squadron is now organising at Farnborough.

Flying Depôt. South Farnborough.—A Henry Farman returned from Calshot on the 1st inst., *via* Netheravon. Experimental work in various directions was carried out.

Admiralty and Naval Airmen.

REGULATIONS have just been issued by the Admiralty to the effect that officers and men of the naval air service are not to fly as passengers or pilots in other than Service aircraft without first obtaining their Lordships' permission. This permission may be given in individual cases or in general terms for specific machines, according to circumstances. Officers selected for the naval air service who are instructed to obtain their Royal Aero Club certificates at a private school are to submit the name of the school they propose to go to for Admiralty approval. Any officer possessing a private machine is not to fly in it unless he possesses a certificate from his commanding officer that the machine has been inspected by a flying officer and an engineer officer, and has been certified as efficient. A certificate of this nature holds good for a month from the inspection, after which a fresh certificate must be obtained.

New Naval Air Stations.

THE Admiralty have now decided upon a site for the Naval Aviation Station at Port Seton, on the south side of the Firth of Forth and opposite the present station at Leven. Two large hangars are being erected to the order of the Admiralty at Hoo, near Rochester, and one is to be ready in three months' time.

Flying a Dunne Biplane to France.

THE most spectacular performance to the credit of the Dunne biplane was the cross-Channel trip by Commandant Felix on Monday. As our readers know, the Astra Co. some time ago interested themselves in the Dunne machine, and sent one of their pilots, Montmain, over to test it. Since then the aeroplane side of the Astra business has been handed over to the Nieuport firm, who have continued to investigate the principles of the Dunne machine, and sent Commandant Felix over to make some more tests with it. So delighted was the visitor with the way the biplane behaved in the air that he decided to fly it back to France, and he started from Eastchurch at 4 a.m. on Monday morning. Although he encountered trying winds and rain, Commandant Felix made a splendid crossing to Boulogne, where he landed at 6.35 p.m. He restarted the following morning, and after a landing at Beauvais, caused through accidentally shutting off his petrol supply, he reached Paris during the afternoon, but landed at Versailles instead of Villacoublay, having lost his bearings. The machine used was practically identical with that illustrated and described in FLIGHT of June 18th and 25th, 1910, except for the fact that the chassis has been redesigned. But it is something that this remarkable machine has been at last "discovered" by the lay Press.

More M. Farmans for British Navy.

LAST Saturday two new Maurice Farman seaplanes, purchased by the Admiralty for the Naval Wing of the Royal Flying Corps, were delivered at Isle of Grain aviation station.

Glenn Curtiss Coming to Europe.

EARLY in September Glenn H. Curtiss is bringing to Europe the latest development of the Curtiss flying boat, which has been putting up such fine performances in the States recently. Mr. Curtiss will be demonstrating his machine before representatives of various governments, and he will be pleased to arrange private demonstrations for anyone interested if they will address him at the Hotel Continental, Paris, which will be his headquarters in Europe, after September 1st.

Razors in the Air.

APROPOS of the momentous announcement from France that M. Blériot has very greatly altered his appearance by shaving off his long moustache, we should say, from the pictures purporting to be Lieut. Dunne which have appeared in the daily papers, that this British pioneer has also adopted some such means to greatly alter his appearance.

A New Anzani Engine.

THE latest product of the Anzani works is a 10-cylinder 125 h.p. motor which weighs 464 lbs. and gives off 124·6 h.p. during short runs, while during a prolonged test the power averaged between 112 and 115 horse power. We understand from the British Anzani Engine Co., Ltd., of 30, Regent Street, S.W., that the petrol consumption works out to 10 gallons per hour, while in the same period between 1¾ and 2 gallons of oil are used. The price of the motor has been fixed at £672, and delivery can be given in a little over a week.

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FOREIGN AVIATION NEWS.

Cavelier's Record for the Michelin Cup—7,096 Kiloms.

IN our last issue we referred to the conclusion of the marvellous nine days' flight of Cavelier for the International Michelin Cup, but owing to an error in telegraphing, the number of rounds made on the last day was given wrongly. As a matter of fact, on the last day he only covered three circuits, so that he only added 337·92 kiloms. to his score, which made the total for the nine days 7,096·32 kiloms. It is not very likely that this performance will be beaten, which was made on a Deperdussin machine with 60 h.p. Gnome motor and Chauvière propeller. This year the prize, owing to it not having been awarded last year, amounts to 40,000 francs, so that, providing no one beats his record, Cavelier will be rewarded at the rate of 5·75 francs per kilom., or, roughly, about 7*s.* 6*d.* per mile.

An American Record.

ON a monoplane, Marvin Wood, on the 9th inst., beat the American record for a non-stop flight by going from Westbury (Long Island) to Gaithersbury, Maryland, a distance of 264 miles in 4 hrs. 51 mins. He tried to beat the express train from New York to Washington, and after allowing the train a start of 6 mins. he was 55 mins. in advance at Baltimore. Then engine trouble developed, and he had to descend a few miles short of his destination.

An American Height Record.

ON July 26th, at Bath, N.Y., Frank Burnside, on a Thomas biplane, beat the American height record of 11,642 ft. made by Lincoln Beachy in 1911, by going up to 12,575 ft. The flight lasted 1 hr. 45 mins., and was officially observed.

Seguin's Fine Try for the Pommery Cup.

IN the half-yearly competitions for the Pommery Cup the monoplanes have practically had matters all their own way, but during the week-end, Seguin, brother of M.M. Seguin Frères, the makers of the Gnome motor, put up a very fine record on a Henry Farman biplane which only missed beating Brindejonc's record by 50 kiloms. Starting from Biarritz at 4.37 a.m. on Sunday morning he flew the 650 kiloms. to Buc in just under 7 hours, and after half an hour's rest, went on in the direction of Denmark. He had to fight his way through wind and rain, but eventually, after flying for 6 hrs. 55 mins., he landed about 6 kiloms. north-east of Bremen,

having then covered about 700 kiloms. since leaving Buc. Further progress was delayed owing to the breaking of the petrol pipe, so Seguin's record was 1,350 kiloms., and he had to be content with second place. Brindejonc des Moulinais still being first with his 1,400 kilom. trip to Warsaw.

More French Honours for Aviators.

IN the list of appointments in the Legion of Honour, published by the French Minister of War in the *Journal Officiel* on Monday last, appear the names of a good many aviators and others connected with aeronautics. In the civil list of chevaliers are included Brindejonc des Moulinais, Caudron, Chauviere, Etienne Giraud, Hanriot, Morane, Spiess and Zens, while in the army reserve list of chevaliers are the names of Balsan, Seguin, Bessonneau, de Lareinty Tholozan, and Esnault Pelterie. Four aviators, Daucourt, Gilbert, Kuhling and Perreyon have been granted the military medal for services rendered in aviation.

Janoir's 1,800 Kilom. Trip.

FOILED in his attempt for the Pommery Cup by the bad weather, Janior decided to continue his journey into Russia, and on Monday reached Riga. He started on his Deperdussin monoplane from Etampes on the morning of the 7th inst., and after being stopped by a gale at Genck, in the neighbourhood of Liège, he went on, and eventually reached Johannisthal, having covered 900 kiloms. The next morning he started for St. Petersburg, but in making an enforced landing at Seelow, in Brandebourg, on some broken ground, the propeller was smashed. On Saturday repairs were concluded, and he went on to Tauroggen just over the Russian frontier, 650 kiloms. from Berlin. A further stage was made on Monday to Riga, which made the total distance flown from Paris 1,800 kiloms.

Two Hours on a Morane.

AFTER giving some exhibition flights at Argentan, Biot, on the 6th inst., returned to Villacoublay, covering the journey of 200 kiloms. on his Rhone-Morane monoplane in two hours.

Delivering a Presentation Aeroplane.

THE Maurice Farman biplane offered to the French Army by the Préparation Militaire was duly installed at Verdun on the 6th inst. It had been flown over from St. Cyr by Lieut. Bretey, who was accompanied by M. A. Cheron, President of the Préparation Militaire, and the latter made the formal presentation on arrival at Verdun.

Testing a New Maurice Farman.

AT Buc, on the 4th inst., Maurice Farman was testing a new biplane of his design which is equipped with an 80 h.p. De Dion motor. With a full load and a passenger, the machine attained a speed of 100 m.p.h.

"General Post" in Aeroplanes.

ON the 4th inst., Maurice Farman on one of his machines, accompanied by his brother Dick, flew from Buc by way of Rambouillet and Chartres to Chambord. On the return trip Dick Farman took charge and Maurice Farman had the somewhat novel experience of a joy ride.

To the Seaside by Aeroplane.

ON his new Maurice Farman biplane the Marquis de Lareinty-Tholozan, on the 8th inst., flew from Buc to Trouville, making a non-stop trip, and being accompanied by his mechanician. On Monday morning the return journey to Buc was made in an hour and three quarters, the passenger on this occasion being the Comte de la Riboisiere.

Renaux on Transport Work.

ON the 8th inst. Renaux made a flying visit to Buc in order to fetch a couple of propellers which were required urgently at Etampes. On the return journey his Maurice Farman biplane also carried a passenger. On the 5th inst. Renaux, accompanied by his wife, enjoyed an excursion on the M. Farman from Etampes to Troyes and Orleans, and back to their starting place.

Brest to Lorient on a Farman.

STARTING from Brest at 2 p.m. on the 9th, Poirec, on a 50 h.p. Henry Farman, with Mdlle. Jeanne d'Orsay as passenger, flew to Lorient in 2 hrs., making stops on the sands at Morgat and at Quimper.

Deperdussins for French Army.

TESTING three new Deperdussins built at Juvisy for the French Army, and fitted with Rhone motors, Prevost took them up 200 metres in 1 min., 500 metres in 3 mins. 37 secs., and 800 metres in 7 mins. 40 secs. The machines were carrying a useful load which totalled 175 kilogs.

Lord Carbery Buys a Morane.

ON Saturday, at Villacoublay, Liger was testing a two-seater Morane monoplane with 9-cyl. Rhone motor, which has been purchased by Lord Carbery, who has just qualified for a pilot's certificate.

Levasseur in the Sea.

HAVING been entered for the Paris-Deauville event, Levasseur, who recently flew from Paris to London, and then to Rotterdam, Amsterdam and Emden on a Nieuport, decided to fly back to Paris. He arrived at Ostend on Saturday at 11 o'clock, and shortly after left again for Issy *via* Dieppe and Rouen. Near Berck he fell into the sea, but pilot, passenger and machine were safely rescued by boats from the shore.

New Aviation Motors.

NOT only has Maurice Farman been testing the new 80 h.p. De Dion aviation motor, but on the 6th inst. he was making a series of trial flights with one of his latest type machines, which has been fitted up with a 120 h.p. Sunbeam motor.

630 kiloms. on a Nieuport.

STARTING from Villacoublay on Saturday morning, Marc Bonnier, with his mechanic Bornier, on a Nieuport-Gnome, eventually reached the Gayeulles aerodrome, near Rennes. From there they flew on Sunday morning to Perros-Guirec, close to Lannion, a total distance of 630 kiloms. from Paris.

Mme. de Laroche at Granville.

LAST Sunday, Mme. de Laroche and Vial gave a series of exhibition flights at Granville, using a H. Farman waterplane. Mme. de Laroche handled the machine very well and brought it down in splendid style despite the limited area of the sands available for landing on.

The Blériot Launching Device.

M. PIERRE BAUDIN, the French Minister of Marine, together with several French naval officials, visited Buc on Saturday and witnessed tests made by Pegoud on a 6-cyl. Anzani-Blériot with the new launching device invented by M. Blériot.

Royal Passenger for Chevilliard.

THE exhibition flights made by Chevilliard on his H. Farman biplane in Denmark, last week, proved very popular, and the pilot had no lack of passengers. They included a good many important personages, one of them being Prince Axel, cousin of the Danish King. On the 9th inst., Chevilliard flew across the Sound from Copenhagen to Malmao, in half an hour. The return to the Danish capital was made on Sunday, with Prince Axel as passenger.

The Ghent Aerial Postman.

STARTING from Ghent on the afternoon of the 7th inst., Crombez on his Deperdussin flew over to Ostend, landing on the sands where his father and mother were awaiting him. After an hour he flew over to Blankenberghe, circling above the Royal Palace on the way.

Long Flights in Germany.

LIEUT. LUDWIG, accompanied by Lieut. von Falkenheim, a son of the Minister of War, started from Johannisthal at 4.20 a.m. August 7th, and after flying in the direction of Thorn for three hours they landed, having covered some 320 kiloms. On the 8th inst., Friedrich started from Johannisthal at 4.30 a.m., and at 10.57 landed at Koenigsberg. He made one stop, occupying 1¾ hours on the way.

New German Prizes.

A SUM of £15,000 has been set aside from the National Fund to provide half-a-dozen prizes to be awarded to the aviators who first make journeys of at least 1,000 kiloms. between midnight and midnight on one day.

Double Fatalities in Russia and Germany.

AT Krasnoie-Selo, on the 5th inst., a military aviator—Polikarpof—and his mechanician were killed in the fall of their machine.

Through a miscalculation when landing, with the result that one wing touched the ground and caused the machine to overturn, Roesler, a Grade pilot, and a pupil named Stephan were killed on Sunday, at Brueck, about 30 miles south-east of Berlin.

Swedish Honour for Brindejonc.

IN connection with the recent 5,000 kilom. flight round the European capitals of Brindejonc des Moulinais, the King of Sweden has conferred upon the aviator the cross of a chevalier of the first class of the Order of Wasau.

Milan to Turin on a Blériot.

ON the 5th inst., Lieut. Cattaneo, on his Blériot-Gnome, covered the distance from Milan to Turin in 1 hr. 10 mins.

1,300 Kilom. Trip in Italy.

LAST week, on a Blériot-Gnome, Lieut. Suglia flew from Turin to Bari, taking three days for the 1,300 kilom. trip, his resting places being Rome and Naples. This is the longest flight to date made by an Italian military pilot.

Models

Edited by V. E. JOHNSON, M.A.

Latitude and Duration Records.

WE have received the following communication from Mr. J. C. Balden (Glasgow): "In looking over the monthly reports of model clubs of late in FLIGHT, I have been struck with the excellent average that most of the clubs show in regard to duration. The members of the Scottish Aeronautical Society Model Aero Club (of which I am one) have often raised the question: How do those English clubs do such fine durations? Doubtless you are aware that the best duration done in Scotland as yet is 65 secs. (hand-launched type of model). Now, the theory I hold is one I should very much like to see tested; it is, that there is a decided difference between the atmosphere in the south of England and the Glasgow district, which is, I think, the cause of our duration records being so poor. I am inclined to believe that this theory is founded on fact, as last year one of our members was in England, and he told me that his models flew very much higher than usual, and that the propellers always ran out in mid air, ensuring a good glide, but unfortunately on this occasion he had no watch with him. We consider our models as well designed, as strong and as finely constructed as any of the English clubs; in fact, we believe they are their equals in every way save in their performances. The thought that suggests itself to us is, could those 80–100 secs. flights be done in Glasgow which are done every week in the south. Could not something be done to test my theory? If any members of English clubs who intend spending their holidays in Scotland would bring a model with them, and at the same time drop a line to our secretary, he would be very pleased to arrange a date to carry out the tests. I would like to have your opinion on the matter and also that of anyone in an English club who has flown a model in Scotland. If, however, you do not agree with my theory, can you explain why it is that no one has done more than 65 secs. in Scotland?"

Referring to the above interesting communication, there appears to be only two possible explanations, viz., the one offered by our correspondent, or that the flying capabilities of the English models, so far at any rate as their ability to maintain themselves in the air is concerned, *are* superior to the Scotch.

The difference of latitude being so small, Mr. Balden's explanation appears somewhat difficult of acceptance; at the same time we certainly should not like to say that climatic conditions have not something to do with it. A model which will *just* fly under certain conditions very soon fails to fly if the conditions become slightly more adverse, the pressure of moisture in the atmosphere soon makes its effect felt. But the neighbourhood of Glasgow is not, we presume, without its dry sunny days, any more than the suburbs of London. Should our correspondent like to send us a Scotch model, the writer will fly it in this neighbourhood, and report results, and also give an unbiassed opinion as to its relative merits. It would be necessary for him to know the maximum number of turns given in Scotland, the duration, and also for the model to be flown here with the same rubber and lubricant as used there. Afterwards, if the owner were willing, he would fly it with other rubber and lubricant, giving it what is considered to be here the maximum wind, and also, if thought desirable, with another pair of propellers. In one respect our correspondent has, we think, a somewhat erroneous impression of English records; durations of 80–100 are uncommon, not common by any means, and the average record would, we should think, work out considerably below this.

The Royal Aero Club Hydro Competition.

This competition, which was held at the Welsh Harp on August 9th, attracted a large number of competitors, and so far as duration is concerned, all existing records were again broken; and, this in spite of the fact that the minimum weight was 8 ozs. instead of 4 ozs., as in the competition of July 14th last.

We think, however, that sufficient encouragement has now been given to the development of flying models with a view to duration mainly, and that in future competitions, since the flying capabilities have been developed to the excellence that they have, far more valuable results can be obtained by making considerable alterations in the tests imposed.

In the early days of model aviation, both duration and distance were of primary importance in the development of models, but they have now served their purpose, and there are a variety of other factors that can be developed with the greatest possible advantage.

With a few notable exceptions, the general sameness of design in the models flown was somewhat striking, not to say disappointing. In a competition of this kind, should one model make a duration a few seconds more than another, the factor of stability is theoretically eliminated; in other words, the winning model *could* afford to lose ten or twelve marks on stability and still win. Now, so far as aeronautical practice is concerned, duration is a factor of no importance whatever; it is merely a question of carrying more fuel in the form of petrol, but stability is a factor of primary importance.

Having made the above remarks which we feel compelled to make in the interest of future competitions, we have nothing but praise for the manner in which the models flew.

Mr. Slatter well deserves his success; he was one of the earliest to experiment with model hydro-aeroplanes, and he has gradually improved and improved his models until he has succeeded in producing a model of more than 8 ozs. in weight which has accomplished a duration *in open competition* of no less than 50 secs. It is a remarkable record, and one which would have seemed almost out of question a year ago. Several other competitors whose names we regret we cannot call to mind, but they will be found in the official results, made durations of 40 secs. or thereabouts, all of which serves to show that equally good, if not better, results can be obtained with heavier models. So far as the actual flying (apart altogether from a duration point of view) of the various models is concerned, we were especially struck with the two models flown respectively by Mr. Bragg-Smith and Mr. Weston. Their models really flew, they did not merely keep in the air for a certain time. Mr. Jannaway also flew twice clean across the lake.

It has always been the opinion of the writer that the awards should be given on the *average* results of the three flights, and not merely on the best flight, and as may happen the only one. It is not correct to say that it is a matter of chance or luck that a model may be upset prior to leaving either water or land. A great deal also depends on the design of the model and the skill of the launcher. Models (in K. and M.A.A. competitions at any rate) are no longer released at the word of a starter, but at a time (within reasonable limits of course) chosen by the launcher.

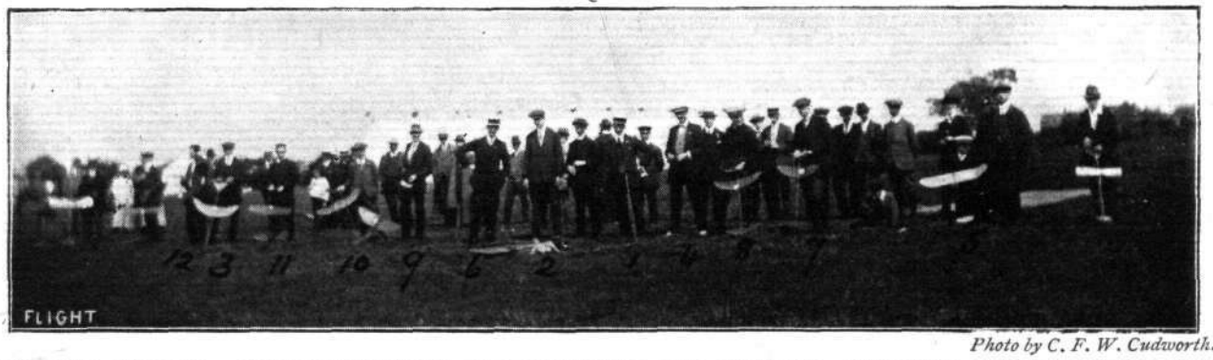

Photo by C. F. W. Cudworth.

MIDLAND MODEL CHAMPIONSHIP AT BURTON-ON-TRENT, AUGUST BANK HOLIDAY.—1. Mr. W. H. Akehurst (K. and M.A.A.). 2. Mr. G. Haddon-Wood (Birmingham). 3. Mr. A. F. Houlberg (Putney). 4. Mr. J. McBirnie (Tottenham). 6. Mr. J. C. Fordyke (Lichfield). 7. Mr. G. Baker (Birmingham). 8. Mr. G. Askew (Sheffield). 10. Mr. C. Dewsnap (Sheffield). 11. Mr. H. Slack (Sheffield). 12. Mr. L. H. Slatter (Clapham).

KITE AND MODEL AEROPLANE ASSOCIATION.

Official Notices.

British Model Records.

Hand-launched	Distance	R. Lucas		590 yards.
	Duration	J. E. Louch		100 secs.
Off ground	Distance	L. H. Slatter		365 yards.
	Duration	A. F. Houlberg / J. E. Louch		80 secs.
Hydro, off water	Duration	L. H. Slatter		45 secs.
Single-tractor screw, hand-launched	Distance	F. G. Hindsley		173 yards.
	Duration	J. E. Louch		68 secs.
Do., off ground	Distance	L. G. Tucker		148 yards.
	Duration	J. E. Louch		45 secs.

Death of Councillor S. F. Cody.—With the deepest regret the Association learnt of the death of Col. Cody, while flying on August 7th. He was one of the first six founders of the Association, also one of the special sub-committee of the War Kite Squadron. Many will remember his famous lectures before the Association. A memorial has been suggested, but no official details can be given pending the approval of his wife and family. The Association sent a wreath of roses to the funeral from the president, Sir John C. Shelley and members of the Kite and Model Aeroplane Association, and the Association was represented by Lieut. T. O'B. Hubbard, of the Royal Flying Corps, and the hon. sec.

Competitions.—Entries for the Trollope Competition for Kites close to-day, also for the Ornithopter Competition for the Baden-Powell Prize.

Kite-Flying Competition, on Wimbledon Common, Saturday, September 6th, at 3 o'clock. Entries close Saturday, August 23rd. Free to members. Non-members entrance fee, 2s. 6d. The "Michelin" Challenge Trophy, presented by the Michelin Tyre Co. Prizes: 1st, silver medal of the Association, and winner to hold trophy for one year; 2nd, silver medal of the Association; 3rd, bronze medal of the Association. Additional rules governing this competition: 1. Competitors must use a team of three kites, with a minimum total measurement of 80 ft., computed by Kite Rule 2. 2. Length of main line, or wire, to total 400 yards. 3. Points of attachment to be 30 yards apart. 4. Length of attaching lines, if used, not to exceed 50 yards. 5. All lines to be officially measured. 6. Each competitor will be allowed one assistant. 7. Competitors must be at judges' flag at 2.30 p.m. sharp, any not present at that time may be disqualified. 8. 100 marks will be awarded for angle of lowest kite, and 100 marks each for stability, strength of construction, and collapsibility, to be divided between the three kites. Total maximum marks 400.

Hydro. Competition.—The hydro. competition for the Royal Aero Club's Prize took place on Saturday, August 9th, on the Welsh Harp Water, Hendon. There were 28 entries. The judges, Messrs. V. E. Johnson, C. Davies, G. Rowlands, and the hon. sec. made the following awards:—

Maximum marks: 75, duration; 25, stability.

Place.	Competitor.	Duration.	Stability.	Total Marks.	Time.
1	L. H. Slatter	75	20	95	50 secs.
2	D. A. Pavely	60½	22	82½	40½ ,,
3	G. Brookes	60½	20	80½	40½ ,,
4	F. W. Jannaway	54½	24	78½	37 ,,
5	W. J. Williams	54	20	74	36 ,,
6	J. E. Louch	54	15	69	36 ,,
7	G. P. Bragg-Smith	46½	22	68½	31 ,,
8	D. Laing	43½	20	63½	29 ,,

Mr. Slatter therefore won the R.Ae.C. prize of £5 and certificate; Mr. Pavely, 2nd prize, £2; Mr. Brookes, 3rd prize, £1, both presented by the Association.

Official Trials.—The next official trials will be held on the Aero Models Ground, East Finchley, on Saturday, August 30th. All entries should be sent in at once owing to holidays.

Research Committee.—All affiliated club secretaries should send in nomination of one member to sit on this committee.

27, Victory Road, Wimbledon. W. H. AKEHURST, Hon. Sec.

AFFILIATED MODEL CLUBS DIARY.

Leytonstone and District Aero Club (64, LEYSPRING ROAD).
AUGUST 17TH, flying, 6.30 a.m., Model Yacht Pond; 10 a.m., near Brickfields.

Reigate, Redhill and District (THE COTTAGE, WOODLANDS AVENUE, REDHILL).
AUGUST 16TH, flying, Earlwood Common, 6 p.m.

Sheffield Aero Club (35, PENRHYN ROAD, SHEFFIELD).
AUGUST 18TH, general meeting at club room, 7.30 p.m. August 30th, r.o.g. contest at aerodrome, 3 p.m. Attempts will be made to break the duration and distance British records.

Wimbledon and District (165, HOLLAND ROAD, W.).
AUGUST 16 AND 17TH, flying as usual.

UNAFFILIATED CLUB.

S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCKLEY).
AUGUST 16TH, Kidbrooke 2.30–5.30 p.m., Woolwich Common 4.30–6.30 p.m.; August 17th, Blackheath 7.30–10 a.m., Lee Aerodrome 10.30 a.m. to 12.45 p.m., Mitcham 2.30–5.30 p.m. Entries for the second round of the "South-Eastern Trophy" competition (5 per cent. allowance), which will be flown on August 30th, cannot be accepted after 28th inst.

IMPORTS AND EXPORTS, 1912-13.

AEROPLANES, airships, balloons, and parts thereof (not shown separately before 1910). For 1910 and 1911 figures, see FLIGHT, January 25th, 1912:—

	Imports.		Exports.		Re-Exportation.	
	1912.	1913.	1912.	1913.	1912.	1913.
	£	£	£	£	£	£
January	619	12,097	2,412	4,005	—	1,510
February	3,110	17,361	36	3,447	—	690
March	640	20,425	950	1,924	600	1,042
April	4,820	15,593	72	5,524	50	1,413
May	7,494	51,241	1,350	3,726	154	830
June	7,928	14,905	419	1,408	300	1,106
July	13,794	14,469	5,376	3,812	967	1,250
	38,405	146,091	10,615	23,846	2,071	7,841

M. Deutsch's "Icarus" at Lucerne.

THE giant biplane built to the order of M. Deutsche (de la Meurthe) by the Voisin Co. some time ago, and fitted with a 200 h.p. engine, has now been taken to Lucerne, where it is being erected. As soon as it is ready, tests will be carried out with it over the Lake.

Passenger Trips Over Lake Geneva.

THE Compagnie Générale Transaerienne have now installed at Erian a Tissandier hydroplane, as well as an Astra-Nieuport hydro-aeroplane, for the maintenance of a regular service between Erian and Lausanne. During last week Labouret carried 26 passengers on the hydro-aeroplane.

A 400-Kilom. Trip in Russia.

ON a monoplane built by himself, and fitted with a 60 h.p. Anzani motor, Alex. Swechnikoff, on the 4th inst., flew from Kieft to Oster-Maxime and back, a distance of about 400 kiloms. On his return he carried out several manœuvres over the town before descending. He proposes shortly to attempt to fly from Kieff to St. Petersburg.

Fatal Accident in Canada.

WHILE making a *vol plané* to the Harbour at Victoria (B.C.), the waterplane of John Bryant capsized and fell in Chinatown. The pilot was killed on the spot.

Mr. Collier's Flying Boat.

FROM New York it is reported that tests made at Marblehead, Mass., with the flying boat built to the order of Robert J. Collier, have proved successful. Piloted by Frank Coffyn, the machine, which it will be remembered is fitted with the first 200 h.p. 20 cyl. Anzani motor, flew at a speed which was stated to be 85 miles an hour.

PUBLICATION RECEIVED.

Smithsonian Miscellaneous Collections. Vol. 62, No. 1. *Advisory Committee on the Langley Aerodynamical Laboratory.* Washington: The Smithsonian Institution.

NEW COMPANIES REGISTERED.

F. C. Nestler, Ltd., 49, Old Bond Street, W.—Capital £2,000, in £1 shares. Dealers in motor and aerial vehicles, &c. First directors, I. Howard, E. S. Howard, and F. C. Nestler.

Talbot-Quick Waterplane Co., Ltd.—Capital £2,000, in £1 shares. Acquiring certain inventions in connection with hydro-planes from W. B. Quick and J. J. Talbot. First directors, H. G. Crofts, S. R. Cohen, H. F. Campion, and J. J. Talbot.

Aeronautical Patents Published.

Applied for in 1912.

Published July 31st, 1913.

16,783. H. COANDA AND BRITISH AND COLONIAL AEROPLANE CO. Starting I. C. engines of rotative type.

Published August 7th, 1913.

16,212. T. TWYNING. Quadruple-winged aeroplane.
16,784. H. COANDA AND BRITISH AND COLONIAL AEROPLANE CO., LTD. Monoplanes.
16,878. J. C. CASTILLO. Winged motor boats.

Applied for in 1913.

Published August 7th, 1913.

7,706. L. A. BRISSARD.

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